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TROPICAL DISEASES BULLETIN

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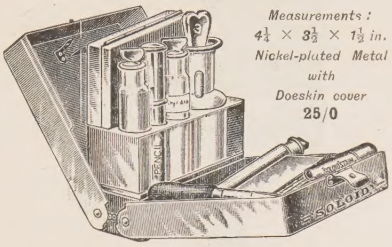

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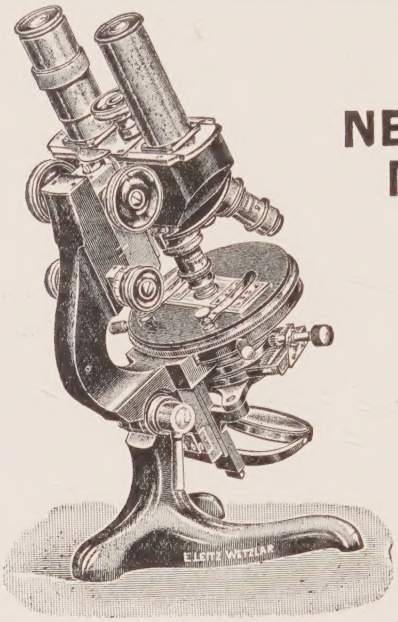

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TROPICAL DISEASES BUREAU.

TROPICAL DISEASES BULLETIN.

Vol. 3.] 1914. [No. 6.

HELMINTHIASIS.

JOUVEAU-DUBREUIL (H.). **Helminthiase Intestinale et Hépatique dans la Population Chinoise de Tchentou (Setchouen, Chine Occidentale).** —*Bull. Soc. Path. Exot.* 1913. Dec. Vol. 6. No. 10. pp. 704-708.

The stools of five hundred adult Chinamen at Tchentou were examined during a period of eighteen months with the following results :—

Ascaris	86·6 per cent.
Trichocephalus	41·0 „ „
Ankylostomes	14·2 „ „
Oxyuris	9·4 „ „

Only 17, *i.e.* 3·5 per cent. were free from infection; 48·6 per cent. had one species, 39·8 harboured two forms and 8·17 had still more. In spite of systematic search no eggs of trematodes or cestodes were found.

R. T. Leiper.

ALESSANDRINI (Giulio). **Sul Potere battericida dei Vermi intestinali.**— Volume "*In Onore del Professore Angelo Celli nel 25º Anno di Insegnamento.*" 1913. Turin: Unione Tipografico Editrice Torinese, pp. 259-276.

From the experiments reported in this paper the author thinks the following conclusions may be drawn :

1. Extracts of several helminths exercise *in vitro* bactericidal action on many pathogenic germs.
2. Not all the extracts of the worms show equal bactericidal action in the same period of time ; some show it more (*Taenia* and *Strongylus*), others less (*Giganthorhynchus*, etc.).
3. The bactericidal action varies with the variety of germ.
4. The germ which shows itself least resistant is *B. anthracis*.
5. The bactericidal action of the extracts of worms seems to manifest itself equally on living germs in the digestive tube of experimental animals.
6. The parasites in the intestines exercise also bactericidal action on living germs in the same intestine.

A. G. B

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Leger (Marcel) & Sauvet (Ch.). **Helminthiase intestinale de la Guadeloupe.**—*Bull. Soc. Path. Exot.* 1914. Jan. Vol. 7. No. 1. pp. 71-75.

The stools of 158 recruits from Guadeloupe were examined at Marseilles by the authors. A table showing the localities whence these came and the numbers infected with the three common intestinal parasites, ascaris, ankylostomes and trichocephalus is given :—

Locality.	Examined.	Parasitised.	Ascaris.	Ankylostome.	Trichocephalus.
Grand-Terre.					
Pointe-à-Pitre ..	37	37	18	23	35
Abymes.. ..	11	11	3	10	10
Gosier	10	10	4	7	6
Sainte-Anne ..	16	16	4	16	15
Saint-François ..	3	3	—	1	3
Moule	16	14	4	12	12
Anse Bertrand..	3	3	2	—	1
Port-Louis ..	3	3	1	3	1
Petit Canal ..	2	2	—	1	2
Morne à l'eau ..	15	15	9	10	11
Guadeloupe proper.					
Petit Bourg ..	7	7	4	6	6
Baie Mahault ..	6	6	1	5	6
Capesterre ..	5	5	3	1	2
Sainte-Rose ..	9	9	3	6	5
Dependencies.					
Marie-Galante ..	13	13	5	5	12
Saint-Martin ..	1	1	1	1	1
Désirade ..	1	1	—	1	1
	158	156	62	108	129

No eggs of taenia nor oxyuris were encountered.

G. C. Low.

TREMATODE INFECTIONS.

Sambuc (E.) & Baujean (R.). i. **Distomatose hépatique et pancréatique.**—*Bull. Soc. Méd.-Chirurg. de l'Indochine.* 1913. Oct. Vol. 4. No. 8. p. 413.

ii. **Un Cas de Cachexie aqueuse chez l'Homme (Distomatose hépato-pancréatique, avec Syndrome pseudo-béribérique.)**—*Ibid.* No. 9. pp. 425-429.

i. The case of a native who exhibited an enormous number of flukes, *Clonorchis sinensis*, in the biliary and pancreatic ducts, and presented during life the symptoms of beriberi with ascites, is described. The number of parasites approximately reached 21,000, this number being calculated in the following manner : 70 flukes weighed about 1 gm. while the total mass recovered, roughly speaking, weighed 300 gm. A large number of parasites were lost at the autopsy, so that if these are also taken into account the infection must have been a gigantic one.

ii. A detailed description of the case. At the autopsy the body was extremely emaciated. There was oedema of the feet, the abdomen was prominent, and serous fluid was found in the peritoneal and pleural cavities. The liver weighed 1,120 gm. and was absolutely crammed with flukes. The hepatic tissue was pale and cirrhotic. The pancreas also contained large numbers.

The symptoms presented by the patient were similar to those of the malady in sheep known as *cachexie aqueuse*, a form of pernicious anaemia set up by the presence of the *Fasciola hepatica* in the liver.

This case is the second one of pancreatic distomiasis in Tonkin, the first being described by Sambuc. (*Bull. Soc. Méd.-Chirurg. de l'Indochine*, 1911, No. 3.)

G. C. L.

Nicoll (William). **The Trematode Parasites of North Queensland. I.**—*Parasitology.* 1914. Jan. Vol 6. No. 4. pp. 333-350. With 2 plates.

In this article, which deals with a number of new trematode parasites of vertebrates, pride of place is given to brief descriptions of *Clonorchis sinensis* and *Fasciolopsis*. The material was presented by Dr. Strangman of Port Darwin, but its origin is unknown. [There seems no evidence at the present time which might lead one to conclude that these forms were acquired in Australia.]

R. T. L.

Lara (Abelardo). **Hemoptisis endemica de los Paises tropicales.** [The Endemic Haemoptysis of Tropical Countries.]—*Rev. Med. de Yucatan.* 1913. Nov. Vol. 9. No. 1. pp. 1-5.

An account of two cases of pulmonary haemorrhage due to the action of *Distoma pulmonum* (*Paragonimus westermani*).

The disease is endemic in Yucatan, and begins as a rule by the onset of rigors, fever, cough and pain in the chest. This is followed in a few days by the expectoration of a copious blood-stained sputum, so that the symptoms resemble those of an attack of acute pulmonary phthisis. The microscope however shows, instead of tubercle bacilli, the presence of numerous ova of the parasite. These are capsulated, yellow in colour and have an operculum at one end. The course of the disease is chronic and the chief danger to life seems to consist in a liability to cerebral embolism. The two cases narrated quickly recovered, at any rate for the time, on a treatment consisting of dry cupping to the chest, and the use of the following pills :—

Sulphate of quinine	1·5 grammes.
Extract of ergot	1·0 gramme.
Extract of opium	0·10 gramme.

Make into ten pills, of which one should be taken every three hours.

The author has seen five other similar cases of a slighter kind, which he was not able to follow up so completely. The parasite probably finds an entrance to the body through drinking water.

J. B. N.

Yokogawa (S.). **Ueber einen neuen Parasiten** *Metagonimus Yokogawai*, **der die Forellenart** *Plecoglossus altivelis* (**Temminck**) **zum Zwischenwirt hat. Bildung einer neuen Gattung.** [On a new Parasite *Metagonimus yokogawai* with a Trout, *P. altivelis*, as Intermediate Host: a new Genus established.]—*Centralbl. f. Bakt.* 1. Abt. Orig. 1913. Dec. 16. Vol. 72. No. 3. pp. 158-179. With 3 plates.

In this paper Yokogawa gives a valuable detailed and illustrated account of the structure and life history of a small trematode found by him to be common in man in Formosa, Japan, and later in Corea. The worm is morphologically similar to Heterophyes and Tocotrema. At first named *Heterophyes yokogawai* by Katsurada it is now placed by the latter in a new genus, *Metagonimus*. The parasites live on the mucous membrane of the small intestine and sometimes penetrate its surface. The cercarial stage occurs chiefly in the fish *Plecoglossus altivelis*, seldom in *Crassius* and in *Cyprinus*. The development of the adults is very rapid. Within 7 to 10 days of the advent of the encysted larva in the duodenum eggs appear in the faeces. These eggs are thick-shelled and of a yellow-brown colour. The posterior end of the egg has a knob-like thickening. Thymol and naphthalin but not santonin are anthelmintic. The larvae are killed at 100° C. but withstand lower temperatures. Infection follows upon the consumption of raw freshwater fish. The first or molluscan intermediate host does not yet appear to be known.

[It is not clear from the text if the name *Metagonimus* is now published as a generic name for the first time, or if it has appeared in the transactions or other publication of the Zoological Institute of the University of Tokio, whose authority for the creation of the new genus is quoted.] R. T. L.

Leger (Marcel). **Les Porteurs de Bilharzies** (*Schistosomum mansoni*) **à la Guadeloupe.**—*Bull. Soc. Path. Exot.* 1914. Jan. Vol. 7. No. 1. pp. 75-78.

The first case of schistosomiasis contracted with certainty in Guadeloupe was described by Mathis and Baujean in 1910.* The patient suffered from pseudo-dysentery. A second case was reported by Courtois-Suffit, Gay & Jacquet in 1912.† The author at Marseilles examined the faeces of 158 young soldiers from Guadeloupe and in 16 found the eggs of bilharzia. In most cases they were not numerous, one or two being found in each preparation. They were always laterally spined, the so-called *Schistosoma mansoni*. No terminal spined eggs nor *S. japonicum* eggs were ever seen. The cases came from different parts of the colony, from Grande Terre and Guadeloupe proper and the dependencies (Marie Galante). Schistosomiasis is also common in Martinique, Noc having found *S. mansoni* 37 times out of 225 patients suffering from gastro-intestinal troubles. As in Guadeloupe the bilharziasis of Martinique is never genito-urinary but always rectal. The author's conclusions are that Guadeloupe constitutes an important focus of intestinal bilharziasis, laterally spined eggs alone existing, and that a tenth at least of the young population harbour the parasite.

G. C. L.

Bull. Soc. Méd. Chirurg de l'Indochine, 1910. Vol. 1. p. 174.
†*Bull. Soc. Méd. des Hôpit. Paris*, 1912, May 16. See also this *Bulletin*, Vol. 1, p. 103.

Milton (Frank). **Does Bilharzia (Schistosomiasis) exist in India?**—*Indian Med. Gaz.* 1914. Jan. Vol. 49. No. 1. pp. 10-14.

It is suggested that an infection with bilharzia might explain the urinary fistula and vesical calculus described in the case "A surgical curiosity" recorded in the *Indian Medical Gazette* for October 1913. However, an examination of the literature has revealed only six cases of bilharzia in man in India and of these the majority were imported. Attention is drawn to two cases reported by Wardrop in 1906, in whom the disease developed about six months after arrival in India from England. This was the first time they had left England. In only one case is there clear evidence of infection of a native who had never been out of India.

R. T. L.

Archibald (R. G.). **Intestinal Schistosomiasis in the Sudan. With Notes on the Treatment of Two Cases by means of Autogenous Vaccines of Coli-like Organisms.**—*Brit. Med. Jl.* 1914. Feb. 7 pp. 297-299. With 4 charts.

Certain cases of "pyrexia with uncertain origin" met with in the Sudan are undoubtedly dependent upon an infection with intestinal schistosomiasis. The patients are usually well nourished adults with fever, headache, furred tongue and enlarged spleen. Diarrhoea and tenesmus are frequently absent; malaria and allied blood infections are indeterminable from blood examination. There is a varying degree of leucocytosis in which the polymorphonuclear leucocytes and large lymphocytes participate. The diagnosis of helminthic infection is masked by the *absence of eosinophilia*. Often eggs are absent from the faeces. In one of the cases there was an extremely rapid enlargement of the spleen. From this was obtained a bacillus resembling an organism previously isolated from the faeces in a case of intestinal schistosomiasis. This suggests that the enlargement of liver and spleen, which are fairly constant features, may be dependent not only on the absorption of helminth toxin, but also on intestinal micro-organisms and their toxins absorbed from the abraded walls of the gut. In such cases vaccine therapy should prove a feasible line of treatment, particularly in the toxic type, and in two cases in which it was tried the results favour an extended investigation. The author regards the absence of eosinophilia in a proportion of the cases of intestinal schistosomiasis, as contrasted with its constant and high rate (40 per cent.) in urinary infection, as a possible differential character between *S. haematobium* and *S. mansoni*. [The common occurrence of typical *S. haematobium* eggs in intestinal cases is apparently overlooked].

R. T. L.

Miyairi (K.) & Suzuki (M.). [**On the Development of** *Schistosoma japonicum.*]—*Tokyo Medical Jl.* (Tokyo iji-shinstu). 1913. Sept. No. 1836. [In Japanese].

The authors noticed that when ox faeces which contains the eggs of *Schistosoma japonicum* is kept for one or two hours in a suitable temperature, mixed with water, the majority of the miracidia come

out, breaking the shell, and swim about very vivaciously. They noticed, also, that in the infected locality there are many snails in the waterways or ditches. Of these snails a great many cercaria parasitise one which has a dark coloured shell with seven spirals. The authors carefully picked up a number of young non-infected [?] snails and tried whether the miracidia enter their bodies or not. They found that the miracidium enters the body of the snail, penetrating the cuticle with the lips and proceeds to the gills (?) and the walls of the digestive canals. After twelve days the first rediae appear and gradually concentrate to the hepatic ducts, elongating, and a number of the second rediae are seen. The authors put mice into the vessel, in which the full grown snails were fed, for three hours every day and repeated this experiment for four days. After three weeks they found a great many *Schistosoma japonicum* in the livers of the mice. The authors conclude that this kind of snail is an intermediate host of *Schistosoma japonicum*.

M. Kumagawa.*

Katsurada (F.). **Schistosomiasis japonica.**—*Centralbl. f. Bakt.* 1. Abt. Orig. 1913. Dec. 31. Vol. 72. No. 4 5. pp. 363-379. With 2 plates and 2 figs.

During the ten years that have now elapsed since Katsurada discovered the *Schistosoma japonicum* as a parasite causing disease in man and domesticated animals many new facts have come to light regarding its structure and life history. These are now summarised by the distinguished discoverer. The males may reach a length of 22·5 mm., the females 26 mm. thus surpassing the *Schistosoma haematobium*. A ripe female may however be only 5 mm. long. The union of the gut branches takes place much further back in the body of *S. japonicum* than in *S. haematobium*, and the united gut in the female is much thicker. From experiment it is found that worms reach maturity in about a fortnight and produce eggs within three weeks. After a month the stools of the experimental animals were bloody and contained mucus in which eggs were numerous. Skin infection has been demonstrated experimentally by Katsurada on cats and dogs, by Fujinami on cattle and by Matsura upon himself. This takes place apparently from spring to autumn. In a footnote it is stated that Miyairi of Kiushu has obtained a reproductive stage of the *Schistosoma japonicum* in a species of Limnaeus (see above). The paper concludes with a bibliography of 31 articles on Asiatic schistosomiasis, all of which receive brief but adequate review in the text.

R. T. L.

White (H.). **A Case of Schistosomiasis japonica.**—*Lancet.* 1914. Jan. 17. pp. 172-173.

A case of this disease occurred on H.M.S. "Cadmus" in the Yangtse River in the spring of 1913. Eosinophilia 56 per cent., temperature 103·4° F., pulse 90. There was very slight epigastric tenderness.

*Fleet Surgeon Kumagawa of the Naval Medical College, Tokio, has kindly undertaken to summarise suitable papers published in Japanese.

Ova of *S. japonicum* appeared in the stools one week after the onset of the symptoms. The temperature continued of septic type, ranging from subnormal in the morning to beyond 102° F. in the evening. The patient steadily lost weight. The blood count showed a variation from 50 per cent. to 70 per cent. eosinophiles.

The author appears to regard oral infection as probable.

R. T. L.

Taeniasis.

McCulloch (Hugh). **Notes on Cestode Monstrosities. With a Report of a New Case of *Taenia saginata* with Y-shaped Proglottides.**—*Amer. Jl. of Trop. Diseases & Prevent. Med.* 1913. Dec. Vol. 1. No. 6. pp. 453-461. With 2 text-figs.

An interesting account of monstrosities met with in tape worms is given and a case of *T. saginata* with Y shaped proglottides is described. Such abnormalities occur rather frequently, the more common consisting of defective or unusual formation of the segments, unusual locations of the genital pores or the genital apparatus, or a marked asymmetry in the branching of the uterus. Abnormalities have also been noted where the line of division between segments on one side of the worm does not coincide with the same line on the opposite side and examples of rudimentary segments, found on one lateral border and not extending all the way to the other side, have been noted.

A series of sketches shows some peculiar Y shaped segments pictured by Küchel, Vigener, Bork and Jelden from similar cases. The segments found in the author's case very closely resemble those illustrated by Vigener.

G. C. L.

Railliet (G.). **Un Cas de Bothriocéphalose observé en France.**—*Bulls. et Méms. Soc. Méd. des Hôpit. de Paris.* 1913. Dec. 4. 3 Ser. 29-e Année. No. 35. pp. 717-720.

The worm was found in a pregnant female 38 years of age, who was not anaemic but suffered from diarrhoea. She had lived in the north-east of France and in the environs of Paris only. Treatment with the ethereal extract of male fern was successful in causing the expulsion of the worm.

G. C. L.

Johnston (T. H.). **Notes on some Entozoa.**—*Proc. Roy. Soc. Queensland.* 1913. Vol. 24. pp. 63-91. With 5 plates.

The cysticercoid stages of *Hymenolepis murina* and *Hymenolepis diminuta* are frequently found in the fleas *Xenopsylla cheopis* and *Ceratophyllus fasciatus* in Australia. Usually only one is found in each flea but as many as nine cysts of *H. murina* have been counted. Three cysticercoids of *H. murina* were also obtained from a single *X. cheopis* off *Mus decumanus*.

R. T. L.

ANKYLOSTOMIASIS.

BRYSON (A. Carruthers). **Ankylostomiasis.**—*China Med. Jl.* 1913. Nov. Vol. 27. No. 6. pp. 363-369.

The discovery by the author that a large proportion of the miners working in Chiaotso, Honan, are infected with ankylostomiasis, is of importance in view of the development of China's mineral wealth in the near future. Eight members of the foreign staff of these mines were found to be infected. The condition known as "bunches" amongst Cornish miners was often met with. In foreigners these usually occurred on the back of the neck and other unprotected parts. Ova of ankylostomes were seen in the stools some weeks after these bunches had occurred. Eosinophilia, up to 60 per cent., was characteristic of the early phases of the disease, dwindling latterly. Of Filix mas, thymol, tannate of pelletierine, sulphur, eucalyptus oil and chloroform mixture, beta-naphthol, the last named proved the most satisfactory for routine purposes. To the problem of prophylaxis the author makes a contribution of practical importance. He recommends that for the collection of faeces underground a liberal supply of pails be installed. Each contains water to the depth of four or five inches and enough "skip" oil (*i.e.* "fuel oil" or "road oil"—the first distillate from petroleum) is added to cover the surface. This keeps away flies. The pails are collected and run to the surface in coal tubs, thence they pass on to a large destructor, are emptied and thereafter sterilised by steam. The oil and coal dust, which is added after each defaecation, ensure that the contents of the buckets are readily burnt.

R. T. L.

WOODS (F. L.). **Hookworm in South China.**
AUBREY (G. E.). **Notes on 400 Treatment Cases.** 1913. Hongkong.

In September 1912 the American Government insisted that all immigrants to the United States must be examined for hook-worm and be refused if suffering from this disease. This led to the investigation in Hong Kong of a large number of Chinese who were about to embark for the States. The work proved difficult on account of attempts at deception. Duplicate certificates and photographs proved of great value in dealing with the Oriental in all classes of emigration work.

The percentage of hookworm infection was 48·1 per cent. (767 in 1,592 cases) in males and 32·8 per cent. (65 out of 198 persons) in females. The outstanding physical signs were anaemia, stunted growth and mental sluggishness.

The town Sun Ning supplied the greatest number of examinations and the percentage from this district was 56·3 per cent. The inhabitants of the whole province of Kwang Tung seemed infected to the extent of from 30 to 60 per cent.

The following table shows the relative degree of infection in various classes of the people :—

(*a*) Students	.. .. ..	59·6 per cent.
(*b*) Merchants	.. .. ..	36·0 „ „
(*c*) Housewives	.. .. ..	34·1 „ „
(*d*) Labourers	.. .. ..	24·5 „ „

A separate series of 150 labourers shows a very much heavier infection, viz. 80–90 per cent.

In treating the above cases Dr. Aubrey emphasises the following points: (*a*) the treatment was voluntary; (*b*) starvation before treatment was impracticable; (*c*) all were unaccustomed to alcohol and could stand large doses of thymol; (*d*) a complete cure had to be effected rapidly. The most satisfactory course of treatment under these circumstances is as follows:—

Patient admitted at 2 p.m., discharged at 4 p.m. on the succeeding day, during which time only rice water and tea were given.

On admission ℞ Mist. Sennae Co. ℥ ii.
Pulv. Rhei Co. ℥ i.

At 6 a.m. next morning half an oz. of sodium sulphate in hot water is given; at 7 a.m. 40 grs. of thymol in a cachet, at 9 a.m. 20 grs. of thymol in suspension and at 11 a.m. 20 grs. thymol in suspension. At midday 1 tablespoonful of sodium sulphate in hot water with 1 drachm of brandy.

The second course of treatment is the same as the first, but the amount of brandy is increased by one drachm.

The third treatment is by the eucalyptus-chloroform mixture (Oleum Eucalypti ♏ xxx, chloroform ℥i, Ol. Ricini ℥x). As in the first treatment senna mixture is given on the previous day. Then at 6 a.m. one tablespoonful of sodium sulphate is given in hot water followed by eucalyptus mixture in the following dosage: At 7 a.m. 4 drachms, at 9 a.m. 3 drachms, and at 11 a.m. 3 drachms.

A cure was effected after one treatment in 52·25 per cent. of the cases and in 20 per cent. after two courses of treatment. The Ankylostomes, especially females, appeared more difficult to dislodge than the Necators.

R. T. L.

Watanobe (R.). [*Necator americanus* **is found in Japan.**]—*Tokyo Medical Jl.* (Tokyo iji-shinstu). 1913. July. Nos. 1820, 1824. [In Japanese.]

Among the seamen of the Sasebo naval barrack the author found five cases of *Necator americanus*. They were all newly recruited young men from Kiushiu Island, and had not left the barrack, so they must have been brought the worms from their homes. The author continued a careful research and found seven more cases in the same barrack. All these men were recruited from Kiushiu Island (South Western Island of Japan).

M. Kumagawa.

Lane (Clayton). **Ankylostomes and Ankylostomiasis in Bengal.**—*Indian Med. Gaz.* 1913. Nov. Vol. 48. No. 11. pp. 417-423. With 4 plates.

Written at the request of the Inspector General of Prisons, Bengal, this admirable paper summarises the noteworthy points in recent work relating to the diagnosis and treatment of ankylostome infections. Although anklyostomiasis is reported to be a great scourge in some parts of India, it is comparatively rare in Bengal. In the cases treated by

Lane the average number of worms passed was 17·5, while in a recent anti-hookworm campaign in America it was over 1,000. Necator and Ancylostoma occurred in 150 cases in Berhampore in nearly equal numbers, while there were 14 cases of infection with *Ancylostoma ceylanicum*, which has recently been recorded in man for the first time by the author. The total number of worms recovered from these 14 cases was 20, which suggests that *A. ceylanicum* is an occasional and probably abnormal parasite in man. Lane regards the possibility of infection in a jail as non-existent and is of opinion that the whole question of the prevention of infection is merely a matter of simple hygiene such as is obligatory in a jail. Under such circumstances a natural cure will ensue, provided the sentences are long enough.

Two plates with 24 figures illustrate the characteristics of *N. americanus*, *A. duodenale*, *A. ceylanicum*, and *O. vermicularis* and their eggs.

R. T. L.

da Costa (Bernardo Bruto). **Breves Palavras sôbre a Anquilostomiase em S. Tomé.** [Brief Remarks on Ankylostomiasis at San Thomé. — *Arquivos de Higiene e Patologia Exoticas.* 1913. Oct. 31. Vol. 4. pp. 119-180.

An account of the measures taken to combat ankylostomiasis in the island of San Thomé. It is estimated that 50 per cent. of the plantation workers on the island are infected with *Ankylostoma duodenale*, and the resulting incapacity for work, apart from actual mortality, is a serious hindrance to the prosperity of the colony. Systematic measures are accordingly being taken to cope with this evil under the author's superintendence as director of the bacteriological institute of San Thomé. The paper commences with an account of the natural history of the parasite and the symptoms caused by it, containing nothing novel, and the author then passes on to a consideration of the various methods of treatment. Preference is given to a mixture of ethereal oil of male fern and thymol, of each 2–4 grammes, santonin 1 decigramme, and calomel 6 to 8 decigrammes, made into 6 boluses, *secundum artem*, to be taken successively, after fasting, at intervals of 10 minutes. The dose is to be repeated on the following day. With this prescription a greater percentage of complete successes were obtained than with any other; namely 58 per cent. of the cases treated. In addition the systematic microscopic examination of the stools of all plantation workers is recommended. Elementary instruction of the native in the ordinary details of cleanliness, in the way of washing the hands before eating and so on, should also form part of the plantation doctor's routine. The greater part of the paper is occupied by the relation of cases submitted to comparative methods of treatment.

J. B. Nias.

Ostrom (Hjalmar). **Ankylostomiasis in Ikoko.**—*Congo News Letter.* Ikoko. 1913.

In this out-of-the-way publication is given the following interesting table of the degree of helminthic infection of natives in a hitherto

uninvestigated part of the Congo.

No. of persons examined	124	
No. with ankylostome ova	107	86 per cent.
„ „ strongyloides	23	18 „ „
„ „ ascaris	71	57 „ „
„ „ whipworm	93	75 „ „

The parasites occurred only in small numbers. The author states that "as the natives do not use human excreta as a fertilizer the chances of infection through the feet are minimised."

R. T. L.

DE ALMEIDA (A. Ozorio). **Campanha contra a Ankylostomiase no Estado do Rio de Janeiro.** [The Campaign against Ankylostomiasis in the State of Rio de Janeiro.]—*Revista Med. de S. Paulo.* 1913. Jan. 31. Vol. 16. No. 2. pp. 27-32.

It is estimated that of the whole population of the State of Rio de Janeiro in Brazil, amounting to about one million persons, not less than 80 per cent. are affected with ankylostomiasis or other allied worm infections of the alimentary canal, the effect on the health and strength of the population being disastrous, especially in rural districts. To cope with this evil a public medical service was created by the State in the year 1911, at the head of which the author was placed. Between 400 and 500 medical posts were formed, from which the inhabitants could obtain a gratuitous supply of the requisite medicines, along with printed instructions and information, the anthelmintic drug selected for the purpose being beta-naphthol, of which 33 centigrammes are combined in a tabloid with 7 centigrammes of phenolphthalein, as a purgative. Machinery was set up in a central depôt for the manufacture of these tabloids, on a wholesale scale. It has been found by experience that preliminary purgation of the patients can be dispensed with, which greatly contributes to the simplicity of the treatment. Although the arrangements have only been in operation for about nine months the results in ameliorating the general health of the population promise to be most satisfactory. Reference is made to what has already been done in the same direction in Costa Rica and the Philippines.

J. B. N.

CAVALLONE (Giovanni). **L'Anchilostomiasi in Desana.** [Ankylostomiasis in Desana.]—*Gazz. d. Ospedali e d. Cliniche.* 1913. Dec. 11. Vol. 34. No. 148. pp. 1551-1552.

The author's observations were made upon 285 cases of ankylostomiasis, of which 254 were from Desana (Piedmont), 31 from its vicinity. The types of person infected were the peasants and others whose occupations brought them into frequent contact with the earth. Persons of all ages harboured the parasites.

More females were attacked than males, 192 of the former to 93 of the latter, or 67·37 per cent. to 32·63 per cent. In the majority of the cases anaemia was seen, some shewing this symptom in an intense form. Detailed particulars are given of a few of the cases.

For treatment small doses of filix mas were given for a considerable time, the author believing that by this method the drug would act not only locally on the intestine but, by being absorbed, generally on the development of the parasites.

G. C. L.

Nicoll (William). **The Blood Volume in Ankylostomiasis. With some Biological Notes relating to the Disease.** *Jl. of Hygiene.* 1914. Jan. 19. Vol. 13. No. 4. pp. 369-392.

In this paper are given the details of experiments performed upon dogs with *Ankylostoma caninum*, the general conclusions of which were summarised in this *Bulletin*, Vol. 1, p. 436. The anaemia in dogs does not appear to be exactly analogous to that in man. The volume and oxygen capacity of the blood are not materially altered, but if anything are diminished somewhat. Eosinophilia was not a constant sign of infection nor of disease. The appearance of large numbers of erythroblasts indicated blood regeneration and this increased with the course of the disease.

R. T. L.

Ascaridiasis.

Swellengrebel (N. H.). **Ontwikkeling van Ascaris-embryonen buiten het Menschelijk Lichaam.** [The Development of Ascaris Embryos outside the Human Body.]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1913. Vol. 53. No. 5. pp. 672-674. With 1 plate.

It is well-known that the eggs of *Ascaris lumbricoides*, when kept in water, undergo development. As a general rule the worms remain inside the capsules, and only emerge after entering the stomach.

On one occasion, the author was able to keep the eggs of *Ascaris lumbricoides* for as long a period as three months in water, by taking the precaution of washing them repeatedly with water and then centrifuging, so as to get rid of all bacteria and putrefactive material. In this way the eggs can be kept clean and separate, and samples taken for examination under the microscope. In one of several tubes containing ova so treated, the author was able to watch the liberation of the worms from their capsules and their movements in the water. As this observation is new it is put on record.

The following changes take place. The ova gradually lose their external rugosities except at the two poles. The worm is completely developed at the end of the second, or the beginning of the third month; it then begins a series of butting movements against the interior of the capsule. Eventually the capsule ruptures and the tail of the worm emerges, while the head remains for some time within the shell. This is illustrated. The body of the worm at this stage is nearly transparent and the mouth is without papillae. After it is completely liberated, the worm develops further. The oral papillae appear and a line become visible down the anterior third of the body, indicating the lumen of the oesophagus. The hinder end of the body gradually becomes opaque with granules, and the tail becomes thicker. The worm is now capable of progressive movement, but does not seem altogether at ease in its surroundings, as its wrigglings are slow and

resemble those of *Strongyloides stercoralis*. The life of these liberated worms is short, and the author does not know whether to regard their emergence as normal or abnormal. If it does not take place by the end of the third month, in water, the worms gradually perish within their shells.

J. B. N.

Vervoort (H.). **Oleum chenopodii anthelmintici, een Wormmiddel tegen Ankylostomum en Ascaris.** [Oleum chenopodii anthelmintici, as a Vermifuge against Ankylostoma and Ascaris.]—*Geneesk. Tijdschr. v. Nederl.-Indië.* 1913. Vol. 53. No. 3. pp. 435-445.

The author, having a large number of coolies under his supervision, instituted an extensive series of tests to ascertain the merits of American wormseed-oil (*Chenopodium anthelminticum*) in comparison with thymol, oil of eucalyptus and other anthelmintics. The remedy had been suggested by Schueffner in the preceding volume of *Geneesk. Tijdschrift*. The dose is from 16 to 20 drops given fractionally on sugar within the space of two hours, followed three hours later by 17 grammes of castor oil along with three grammes of chloroform, the bowels having been previously cleared with Carlsbad salts. Later on the chloroform was omitted. The remedy was compared in its action with 2 gramme doses of thymol similarly administered, and so on with the other drugs tried, and an attempt is made to express the results according to an elaborate system of percentage, for details of which reference must be made to the original paper.

The practical conclusion is that wormseed oil is a good anthelmintic, rather more expensive than thymol, but having the advantage that it can be given in capsules, which saves time in the administration. As it is doubtful whether the oil does more than stupefy the worms, it seems advisable to follow this anthelmintic by a purge.*

J. B. N.

Vickery (D. Hadden). **Intestinal Obstruction due to a Coil of Worms.** —*Brit. Med. Jl.* 1913. Dec. 13. p. 1534.

The author describes a case of what he believes to be intestinal obstruction due to a coil of worms. The patient, a young married woman, was taken suddenly ill with severe abdominal pain and vomiting, during which a large round worm was brought up. Santonin, gr. 5 in castor oil, was then given, and later, during a severe bout of vomiting, a large mass of some 12 large worms was ejected from the stomach; the vomiting then ceased. Pregnancy complicated the case. A few hours after the ejection of the worms delivery of a six months' foetus took place. The patient made a good recovery.

G. C. L.

* "*Chenopodium anthelminticum*, Linné (*Chenopodiaceae*). Contains a Volatile Oil, Official in U.S. *Average dose*, 3 minims. For round worms, 10 minims on sugar or in emulsion has also been tried with good results giving 0·25 to 0·5 gram in sugar and water, and following this in an hour or two with a dose of castor oil. The treatment may be repeated after a day's interval. The fresh plant contains chenopodine, an alkaloid."—*Extra Pharmacopœia*. Martindale & Westcott. Vol. 1. 15th Edition, p. 809.

Enernao (Togliani). **Sopra un Caso di Morte causata da Ascaridi.** [On a Case of Death caused by Ascarides.]—*Policlinico.* Sez. prat. 1914. Feb. 1. Vol. 21. No. 5. pp. 163.

A child of about ten years, after the administration of an anthelmintic by its parents, was seized with abdominal pain and vomited up many *Ascaris lumbricoides.* When the author saw the case, a condition somewhat resembling typhoid was present. Pains continued and a tumefaction appeared under and to the left of the umbilicus.

The patient was then removed to hospital and, signs of obstruction persisting, the abdomen was opened. At the lower part of the ileum two large masses of ascaris were found and, as these could not be moved down, the intestine was opened and the parasites were removed.

The condition of the child did not improve, and after the vomiting of more worms by the mouth death took place the day following the operation. At the autopsy the sutures of the bowel were found to be in a good state and there were no signs of peritonitis. Many ascaris were present in the stomach, a few only in the intestine, these occurring in small isolated groups. The question of the parasite having a toxic as well as a mechanical action on its host is referred to.

G. C. L.

Poumayrac. **Lombricose à Forme Grave.** [Clinique d'Outre Mer.] – *Ann. d'Hyg. et Méd. Colon.* 1913. July-August-Sept. Vol. 16. No. 3. pp. 783-784.

An Annamite, 26 years of age, was admitted into hospital in a comatose condition. His parents stated that he had had severe fever accompanied by epigastric pains and convulsions so violent that it was impossible to keep him in bed. Two injections of quinine (25 centigrammes) and one of caffeine were given and under the influence of this the temperature came down. Epigastric pain however continued with vomiting, and on the following morning severe convulsions again took place. During further vomiting a very large *Ascaris lumbricoides* was expelled by the mouth. The author thereupon gave santonin followed by a castor-oil purge, with the result that 33 samples of this worm were passed per rectum. A further dose of santonin resulted in the expulsion of eight more and after that convalescence was quickly established.

G. C. L.

Pflugradt (R.). **Askariden in den Gallenwegen.** [Ascarides in the Bile Ducts.]—*Deut. Med. Wochenschr.* 1914. Jan. 29. Vol. 40. No. 5. pp. 227-228.

A description of another case of ascaridiasis, parasites being found in the bile ducts. The patient, a woman of 67, had suffered for six or seven years from pains in the region of the liver with jaundice. The abdomen was explored and the gall bladder opened and drained. On the morning of the third day a round worm escaped from the opening. The administration of ol. chenopodii by the mouth

resulted in the expulsion of six worms in the faeces, while another was removed from the gall bladder. Finally the fistulous opening leading from the gall bladder was operated upon and closed, the patient making a good recovery.

G. C. L.

Tirumurti (T. S.). **The Vagrant Habits of *Ascaris lumbricoides* with the Report of a Case of Interest.**—*Jl. Trop. Med. & Hyg.* 1913. Dec. 15. Vol. 16. No. 24. pp. 379-380.

Attention is drawn to the wandering habits of the *Ascaris lumbricoides*. Normally living in the jejunum and upper part of the ileum, the parasite may wander to different parts of the intestinal tract, stomach, mouth and anus. Here it gives rise to no very serious trouble. In other instances it has passed into the larynx from the oesophagus, causing asphyxia and death. In others it has set up diffuse suppurative peritonitis by its escape through the intestine into the peritoneal cavity. Liver abscesses have also been caused by the parasites passing up into that organ, but such cases are rare. Passage into the appendix has given rise to verminous appendicitis.

The author describes the autopsy of a poorly nourished girl in which the bile duct had five round worms distending it, while many had travelled up the smaller bile ducts, one of them very nearly to the dome of the right lobe of the liver. These were found by chance, the patient having died of kala azar.

G. C. L.

Ohira (T.). *Strongyloides stercoralis* **and its Pathogenicity.**—*Jl. of the Soc. of Med. Science of Tokyo.* 1913. Nov. Vol. 27. No. 21. [In Japanese.]

The author having described the details of the life history of *Strongyloides stercoralis* concludes after many experiments :—

1. *Strongyloides stercoralis* is often found in Japan, especially in the southern provinces.
2. Where *S. stercoralis* parasites are present the health of the infected person suffers.
3. Nematodes like *S. stercoralis* are parasitic on both animal and vegetable life, and very often live free. Investigators must pay attention to this point.
4. The diagnosis must be made only with fresh faeces. In the case of examination of old faeces care must be taken to differentiate from Ankylostoma.
5. *S. stercoralis* oviposit in the intestinal wall and sometimes eggs may appear in the faeces. In such a case, if the embryo is found at the same time, one can differentiate them from Ankylostoma very easily.

M. Kumagawa.

PELLAGRA.

Lavinder (C. H.). **Pellagra in Mississippi. Its Reported Prevalence and Geographic Distribution.**—*U.S. Public Health Reps.* 1913. Oct. 3. Vol. 28. No. 40. pp. 2035-2038.

A record shewing the number of cases of pellagra occurring in the different counties of the State of Mississippi during the first six months of 1913, together with the number of deaths due to the disease from November 1912 to June 1913. The following are the figures :—

Race.	Cases.	Deaths.	
	Jan. to June (incl.) 1913.	Jan. to June (incl.) 1913.	For Nov. & Dec. 1912.
White	648	74	27
Coloured	665	194	51
Total ..	1313	268	78

H. MacLean.

MacDonald (J. B.). **Notes on Pellagra in Massachusetts, with Report of Two Cases in Danvers State Hospital.**—*Boston Med. & Surg. Jl.* 1913. Oct. 16. Vol. 169. No. 16. pp. 567-571. With 2 text-figs.

Until recently pellagra was practically unknown in Massachusetts. Of ten cases which have now been recognised all occurred since 1910; the only case previously noted was one in 1862. Two typical cases of pellagra are described in full, in both of which poverty and malnutrition seemed to play a part. Maize did not enter much into the diet in either case.

H. M.

Gehring (Edwin W.). **Pellagra in Maine.**—*New York Med. Jl.* 1913. Dec. 20. Vol. 98. No. 25. pp. 1212-1213.

Three cases of pellagra in Oxford County, Maine, U.S.A., in which marked gastro-intestinal symptoms and typical skin lesions were present. In two, mental symptoms preceded those of the other systems. In the other case mental symptoms were absent. There was nothing special in the food or surroundings which might help to clear up the etiology.

H. M.

Bailey (R. T.). **Two Cases of Pellagra.**—*British Guiana Medical Annual for* 1912. pp. 115-118.

A description of two fatal cases of pellagra occurring in British Guiana. Typical symmetrical skin lesions, gastro-intestinal mani-

festations and nervous derangements were present in both cases, as well as profuse salivation, stomatis and albuminuria. In both a peculiar odour of " herring or rancid brine " was noticeable about the body.

H. M.

Stannus (Hugh S.). **Pellagra in Nyasaland.** (Second Communication.) —*Trans. Soc. Trop. Med. & Hyg.* 1913. Nov. Vol. 7. No. 1. pp. 32-56. With 4 maps and 1 diagram.

In Nyasaland, during the 15 months preceding April 1911, 40 cases of pellagra were described among the inmates of the Central Prison, Zomba. From March 1912 to March 1913, 131 cases were recorded in the prison, by far the largest number occurring in the autumn of 1912. A characteristic feature is the sodden and thickened epithelium appearing at the angles of the mouth; the lips or tongue are affected in a large proportion and this symptom may be used for diagnosis at a season of the year (February and March) when no rash has appeared. In addition to the prisoners, several lunatics confined in prison also developed symptoms of pellagra and three cases occurred among inmates of the asylum. In several cases relapses have been noted.

The disease has now been met with outside the prisoners, among the warders and among the native troops, in all of whom lip and tongue symptoms, but no rash, were noted. Other cases have been met with in Zomba and at places within 15 miles of Zomba and also in the Chikala district. In Western Nyasa and in Momberas out of 36,000 natives examined none shewed pellagrous symptoms.

Males were found to be more commonly attacked than females. The gangs of prisoners are employed chiefly in road-making and in clearing the streams in Zomba. The women, all non-pellagrous, are employed close to the prison.

The prisoners' diet consists generally of rice; out of 131 pellagrous prisoners only four ate maize. Maize theories of causation are therefore excluded, but the facts observed are still consistent with an intoxication by damaged rice or grain, or with some deficiency in a grain diet consisting of rice or maize. During January and February simulium larvae and pupae abound in the streams of Zomba, and the prisoners who work at clearing these streams when simulium is breeding in the greatest numbers are liable to be bitten by them; the incidence of pellagra among groups of natives has been found roughly proportional to the liability to attack by Simulium. Possibly the cases described as relapses are due to seasonal reinfection or intoxication. In Zanzibar no case of pellagra has been diagnosed, but cases of beriberi, with soreness of the angles of the mouth, are described.

H. M.

Mense (C.). **Reisebeobachtungen über Pellagra.** [Itinerant Observations on Pellagra.]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1913. Nov. Vol. 17. No. 22. pp. 788-793.

The author, who inclines to the infection theory of pellagra, points out that pellagra seems to be distributed over the whole world and sporadic cases are appearing in every country. Observations by Merk, which shew that the disease is not hereditary, are quoted.

According to Merk certain skin lesions, which were looked upon as those of hereditary pellagra, are quite as common in the children of non-pellagrins as in those of pellagrins.

On the other hand Bresadola has shewn that certain nervous manifestations and intestinal troubles appear in the children of pellagrous ancestors. With regard to the effect of alcohol as a predisposing factor in the etiology of pellagra opinions are divided. Notes on the manifestations of the disease in different districts are given. The author finds that the potassium sulphocyanide content of the saliva is decreased and suggests the possible utility of this observation in diagnosis.

H. M.

Commissione Pellagrologica Provinciale di Belluno. **Relazione del Presidente Dottor** Luigi Alpago-Novello **a S.E. il Ministro di Agricoltura Industria e Commercio.** [Report of the President of the Provincial Pellagrological Commission of Belluno.]—*Riv. Pellagrologica Italiana.* 1913. Sept. Vol. 13. No. 5. pp. 67-69, and Nov. No. 6. pp. 86-89.

The diminution of pellagra in Belluno (Venetia) is confirmed on all sides, the chief aim of the Commission is to prevent feeding with spoiled maize, and to diminish the cultivation of maize where this does not ripen well or can usefully be replaced by other crops. It is established that pellagra appears wherever maize is excessively cultivated and follows the introduction of the grain. An account of the measures taken to combat the disease is given ; these include popular instruction in the schools, the inspection of grain, a large quantity of the latter having been confiscated, and the cultivation of other edible crops (beetroot, potatoes, etc.) in place of maize.

H. M.

Weiss (Ettore). **La Pellagra nel Tirolo meridionale e l'Azione del Governo contro la Stessa.** [Pellagra in South Tyrol.]—*Riv. Pellagrologica Italiana.* 1913. Nov. Vol. 13. No. 6. p. 90.

The number of cases in Tyrol is decreasing ; this is ascribed to better general conditions and to the limitation of the use of maize (sound as well as spoiled) as the staple article of diet. Pellagra is undoubtedly connected with maize and is probably due either to lack of some necessary substance, as in the case of beriberi, or to some poisonous substance introduced by maize—especially by bad maize. Pellagra is much more prevalent where the flour used is very fine without husk.

H. M.

Ferrannini (L.). **La Pellagra in Inghilterra.** [Pellagra in England.] —*Riforma Medica.* 1913. Oct. 11. Vol. 29. No. 41. pp. 1135-1136.

A general historical account of the occurrence of pellagra in the different European countries. The first known case of the disease occurred in Spain and was described in 1735.

Frapolli first recognised it in Italy and called it pellagra.

Sambon has shewn that the first definite case in Great Britain occurred in Scotland in 1863, the next in 1906, and a third in 1909. In England in 1912 a patient suffering from pellagra was admitted to St. Thomas's Hospital; in this case two brothers of the patient also contracted pellagra. Other cases have now been diagnosed in England.

Sambon asserts that the occurrence of the British cases lends support to his theory and absolutely eliminates the possibility of maize being the etiological factor.

H. M.

Hogg (C. A.). **Cases of Pellagra-like Skin Lesions in Australia.**—*Australasian Med. Gaz.* 1913. Oct. 18. Vol. 34. No. 16. (No. 457). pp. 357-363. With 3 figs.

Since very few gnats are found in Australia, the presence of cases of pellagra would furnish evidence against the Sambon theory of gnat transmission. Four cases presenting the typical skin lesions and mental symptoms of pellagra occurred in New South Wales. The writer inclines to the view that these were typical cases of pellagra.

H. M.

Aetiology.

Siler (J. F.), Garrison (P. E.) & MacNeal (W. J.). **Pellagra. A Summary of the First Progress Report of the Thompson-McFadden Pellagra Commission.**—*Jl. Amer. Med. Assoc.* 1914. Jan. 3. Vol. 62. No. 1. pp. 8-12.

The Commission report that a study of the prevalence and distribution of the disease and of the dietary of the pellagrins and non-pellagrins in the same district gives no support to the view that the ingestion of maize (good or spoiled) is the essential cause of pellagra. A striking feature is the high incidence of the disease among females of the cotton-mill village population between 19 and 45 years. Poverty of nutrition, child birth, tuberculosis and other weakening causes play important roles as predisposing factors. The higher incidence of pellagra in the more populous districts and the indication of its occurrence in definite foci support the view that pellagra is a specific infection communicated from person to person, transmitted possibly by the blood-sucking insect *Stomoxys calcitrans*, possibly by the contamination of the food or by some other means as yet unknown.

H. M.

Hunter (S. J.). **Pellagra and the Sand-Fly. II.** [With Discussion.]—*Jl. Economic Entomology.* 1913. Feb. Vol. 6. No. 1. pp. 96-101.

The results of an investigation on the relation of pellagra to the presence of sand-flies in Kansas are recorded. The following facts have been ascertained:—(1) The number of sand-flies has been directly proportional to the number of cases of pellagra, while the first appearance of the cases coincides with the principal broods; the flies appear to bite more vigorously immediately after the principal broods. (2) Sand-flies which are fed on human blood live several days longer

than those which have not been so nourished, thus favouring an incubation period of a parasite if such there be. (3) The presence of pellagra in Kansas has been confined almost entirely to one restricted locality. Of nine cases recorded last year, five were traced back to one town in which flies are usually abundant.

These observations support the SAMBON theory, but against this theory is the fact that pellagra has never been produced in any other animal experimentally, either through inoculation or through transference by means of sand-flies.

Since nearly all the cases of pellagra were in natives who had never been out of the State, the cause of pellagra exists in Kansas.

H. M.

WOOD (Edward J.). **Some Problems in the Etiology of Pellagra.**—*Interstate Med. Jl.* 1913. May. Vol. 20. No. 5. pp. 437-442. With a map.

A discussion of certain difficulties in the etiology of pellagra. It is pointed out that the corn theory is untenable and that well-nourished men are sometimes attacked, so that inanition is not the cause. As a result of his experience the author favours SAMBON'S theory.

H. M.

HARRIS (William H.). **The Transmission of Pellagra from Man to Monkey.**—*New Orleans Med. & Surg. Jl.* 1913. Nov. Vol. 66. No. 5. pp. 385-386.

The author claims to have transmitted pellagra from man to monkey in two cases (see this *Bulletin*, Vol 2, p. 494.) In the first case portions of the brain and cord, skin, and part of the intestinal tract shewing marked lesions were removed from the body of a patient who had died from pellagra. An emulsion of these materials was made and Berkefeld filtrates obtained from them. These were inoculated in large quantities subcutaneously, intravenously, and intracranially. After an unexpectedly long period of incubation this animal developed clinical signs and symptoms similar to those of pellagra and finally died. An examination post mortem revealed only the lesions found in fatal pellagra. The skin especially presented the hyperkeratosis and pigmentation identical with that found in the skin in human beings. In the second case emulsions were prepared as before from a typical fatal case of pellagra. In this instance the ileum, which shewed very marked lesions, was especially selected. Injections of a filtrate of the emulsion were given to a monkey exactly as in the first case. Two months later this monkey was re-inoculated. After two months diarrhoea set in accompanied by inflammation of the tongue, loss of appetite and erythematous skin lesions over the bridge of the nose which spread over the cheeks and under the eyes. Lesions characterised by their symmetry of location and shape developed upon the conchae of both ears, the shoulders, arms, and dorsal surface of the hands. Pigmentation was in evidence and scales and plaques finally occurred. Assuming that the induced disease is true pellagra, these results suggest that the etiological factor of pellagra may be a member of the group of filter-passers. [In this connection a control from a non-pellagrin would be interesting.] H. M.

Meredith (Duane). **A Report of Research Work on Pellagra, with Isolation of Possible Causative Factor.**—*Texas State Jl. of Med.* 1913. Oct. Vol. 9. No. 6. pp. 191-192.

The author claims to have isolated from two cases of pellagra a micro-organism which when injected intraperitoneally into a chicken induced suspicious lesions of the legs and marked atrophy of the comb and gills. [Technique observed is open to criticism.]

H. M.

Driscoll (T. Latane). **A Theory of the Etiology of Pellagra.**—*Southern Med. Jl.* 1913. Vol. 6. No. 6. pp. 400-401.

The theory is put forward that pellagra is due to a deficiency of some essential chemical substance in the diet. This substance is present in the outer layer of the corn grain and is removed to a large extent in the processes of milling and sifting. In Italy, so marked is the distaste for bran that the natives sift their meal several times and so get rid of the essential substance. In the case of spoiled maize the outer layer is certainly injured. Some results obtained in experiments on chickens are advanced in support of these claims. Chickens fed on corn with the outer covering removed develop manifestations on the legs similar to those of pellagra in man. Chickens fed on bran only develop the same condition. The symptoms disappear in about three weeks when the chickens are fed on whole corn. In four cases of pellagra in man good results were obtained by feeding on corn meal to which bran had been added.

H. M.

Nightingale (P. A.). **Zeism or Pellagra?**—*Brit. Med. Jl.* 1914. Feb. 7. pp. 300-302.

In 1912 the author described cases of a disease with certain pellagra-like symptoms which occurred in Rhodesia. He stated that this disease, though in some respects resembling pellagra, was certainly not pellagra, and on account of its connexion with maize called it "Zeism." Sambon however affirms (*Brit. Med. Jl.*, July 5, 1913) that these cases of so-called zeism were really pellagra and the present article is an attempt to prove "either that Zeism is not the same as Pellagra, or if it is, that Pellagra at least in this part of the country (Rhodesia) is directly due to the loss of some essential nutritive constituent during the process of grinding maize into meal." Cases of zeism occurred when meal from which the husk was removed formed the staple article of diet. When this was replaced by meal containing the husk, improvement immediately set in and no fresh cases of the disease arose.

H. M.

Loften (Lucien). **The Cause of Pellagra. (Preliminary Report).**—*International Jl. of Surgery.* 1913. Aug. Vol. 26. No. 8. pp. 289-290.

The author has met with nine cases of pellagra recently in which careful examination of the faeces was carried out, with the result that hookworm or hookworm eggs were found in every case. A history

of hookworm infection was secured in every instance and it is pointed out that pellagra is always present where there is hookworm! The suggestion advanced is that pellagra and hookworm infection may be the same condition with different names, pellagra being regarded as the result of a "latent hookworm poison." No typical skin lesions were present in these cases. [The great prevalence of hookworm infection in some localities, e.g. 90 per cent. infected, makes it necessary to examine a large number of controls before assuming that pellagra or any similar condition can be attributed to hookworm infection.]

H. M.

Clinical.

Reid (Robert), & Calwell (William). **Notes of a Supposed Case of Pellagra.**—*Brit. Med. Jl.* 1913. Sept. 27. pp. 784-785.

A supposed case of pellagra occurring in Belfast, the patient being a farmer aged 66. Dermatitis of the back of the hands was very pronounced and was present to a certain extent on the chin and parts about the mouth. There was also desquamation, at intervals, of the skin of the neck and chest. The mental condition of the patient appeared to be fairly normal though a few nervous manifestations such as irregularity of the pupils and stiff gait were present. The knee jerk was absent in the left leg and feebly marked in the right. The patient complained of occasional diplopia, soreness at the angles of the mouth, tingling in the feet and slight staggering.

H. M.

Lempriere (L. R.). **Pellagra.** (Memoranda.)—*Brit. Med. Jl.* 1913. Sept. 27. p. 810.

The case of a woman aged 32 living at Llanidloes, Glamorgan, who suffered periodically from symmetrical rashes on the forehead, under the eyes, over the nose and cheeks, slightly below and behind the ears, on the upper part of the neck and on the back of the hands and wrists. The first attack took place in the summer of 1909. The rash was at first red and itchy, followed by blebs and finally desquamation. Gastric and intestinal disturbances were present, together with mental symptoms which necessitated her removal to an asylum for six months.

Occurrence of the rash took place each summer but no mental symptoms followed. When she was seen in August 1913, skin symptoms were very marked and the patient suffered from diarrhoea and retching. Knee jerks were negative, ankle clonus was present and there was some irregularity of the pupils. No mental symptoms were noted. The patient was in a very weak condition. Gradual recovery took place.

H. M.

Johnstone (Emma M.). **A Note on a Case of Pellagra.**—*Lancet.* 1913. Oct. 18. pp. 1114-1115. With 2 figs.

A full description of a case of pellagra in an Englishwoman, with a record of two other cases in insane female patients; in no case was there evidence that any maize had been eaten.

H. M.

Spurgin (W. H.). **Acute Pellagra or Dermatitis exfoliativa?**—*New York Med. Jl.* 1913. Nov. 29. Vol. 98. No. 22. pp. 1070-1071.

An account of a case from the North of England in which symptoms strongly resembling those of pellagra are described—dermatitis, profuse desquamation, erythema, suppuration, pyaemia and emaciation. It is stated that no Simulidae or Culicidae were found by the bacteriologist " although urine, pus and stools were examined."

H. M.

Rainsford (F. E.). **On a Fatal Case of Pellagra in an Insane Patient.**—*Lancet.* 1913. Dec. 20. pp. 1759-1760.

This is interesting as the first case of pellagra recorded in Ireland. The patient was a woman, 70 years old, whose dietary had not included maize.

H. M.

Pearson (R.W. J.). **Report of Egyptian Case [of Pellagra].**—*Trans. Soc. Trop. Med. & Hyg.* 1913. Apr. Vol. 6. No. 5. pp. 161-163.

Report of a typical fatal case of pellagra in an Egyptian woman aged 30. In this case the diet was largely made up of dhurra. Post mortem, adhesions and thickening of the cerebral membranes were found. The spinal cord membranes shewed much granular, blackish brown pigment and cerebro-spinal fluid was present in excess. The stomach and intestines were thinned and transparent, the heart flabby and atrophied and the kidneys somewhat fibrous.

H. M.

Drummond (J.). **Pellagra in Durban.** [With Discussion.]—*S. African Med. Rec.* 1913. Oct. 11. Vol. 11. No 19. pp. 416-419.

A very complete description of a fatal case of pellagra in a native in Durban. The only characteristic lesion found post mortem was a thinned bowel, but without ulceration.

H. M.

Tucker (Beverly R.). **Early and Undeveloped Cases of Pellagra.**—*Southern Med. Jl.* 1913. April. Vol. 6. No. 4. pp. 232-234.

By careful investigation of the history of the patient and attention to apparently slight symptoms, much can be done in diagnosing early cases of pellagra. In doubtful cases attention should be paid to the part of the country in which the disease occurs, the diet, habits, and previous health of the patient, the season of the appearance of symptoms and the history of disturbances of a similar nature. Such symptoms as stomatitis, salivation, diarrhoea, vomiting, proctitis, and all cutaneous and nervous manifestations should be noted. In the treatment of pellagra urotropin has proved of most value in the author's hands.

H. M.

Treatment.

Sozzi (Luigi). **La Cura della Pellagra col Siero Nicolaidi.** [The Treatment of Pellagra with Nicolaidi's Serum.]—*Riv. Pellagrologica Italiana.* 1913. Sept. Vol. 13. No. 5. pp. 72-74.

The serious disturbance of metabolism in pellagra especially affects the inorganic constituents. The pellagrin is demineralised. In Nicolaidi's treatment, which has been successfully used in Roumania and Italy, a serum rich in mineral constituents is injected. The present paper is an account of the treatment of four certain and one suspected case of pellagra, with injections of 50 cc. of Nicolaidi's serum in the gluteal and lumbar dorsal regions. The injections were made on alternate days and were followed by ten minutes' massage. During the treatment the patients drank water containing excess of siliceous constituents.

The author finds that after 18 injections the gastro-intestinal functions were restored to normal, the cutaneous symptoms improved and the nervous tone of the patient raised. The condition of the reflexes was not affected by the treatment.

H. M.

Niles (George M.). **The Treatment of Pellagra. An Optimistic Survey of its Present Status.**—*Jl. Amer. Med. Assoc.* 1914. Jan. 24. Vol. 62. No. 4. pp. 285-287.

A review of general treatment used successfully by the author involving attention to hygiene, diet, drugs and psychotherapy. Alternate injections of iron arsenite (16 minims) and sodium cacodylate ($\frac{3}{4}$ grain) were used and internally a saturated solution of potassium iodide and Fowler's solution.

H. M.

Pathology.

Singer (H. Douglas) & Pollock (Lewis J.). **The Histopathology of the Nervous System in Pellagra.**—*Arch. Internal Med.* 1913. June 15. Vol. 11. No. 6. pp. 565-589. With 34 coloured figs.

In the acute attack of pellagra and in the interval the nervous changes present a picture compounded of acute and chronic types of reaction. The acute changes include direct and indirect chromatolysis of nerve cells, satellitosis, astrocytosis, and the presence of amoeboid glia cells. There is also a very moderate amount of perivascular infiltration indicating general intoxication.

The fact that the perivascular infiltration of the acute attack is not more marked than that found in the interval, furnishes an additional argument against an acute local infection of the nervous system during the acute outbreak of the disease.

The chronic changes include fatty and fibroid degeneration, chronic Nissl changes of the nerve cell, increase of glia fibres, regressive changes of the glia cells, permanent destruction of nerve fibres and a marked increase of amyloid bodies. Chronic vascular changes were limited to cases of chronic alcoholism and senility.

The reaction known as "central neuritis" was constantly present in all cases examined where death had ensued soon after an attack

of pellagra. In two patients dying 18 months after an attack this type of change had entirely disappeared, while in a third case in which death took place three and a-half months after such an attack the change was present only to a slight degree.

There was no evidence of a local bacterial infection of the nervous system.

H.M.

Wilson (S. A. Kinnier). **The Pathology of Pellagra.**—*Proc. Roy. Soc. Med.* 1914. Feb. Vol. 7. No. 4. Neurological Section. pp. 32-41.

A preliminary account of the pathological changes found in the organs of 13 cases of pellagra. In nine cases the material was obtained from Nyasaland while the four other cases were English. In all there was abundant evidence of a widespread generalised toxaemia of the peripheral and central nervous system. Peripheral nerves stained by the Weigert-Pal method or by Marchi's method shewed more or less irregular areas of degeneration of the myelin sheaths. Involvement of the axons has been noted only in advanced cases. Several of the sciatic nerves exhibited definite oedema of the nerve fibres and the "Mastzellen" of Ehrlich were found in abundance. By staining with thionin blue or toluidin blue a marked increase of certain minute granules or flakes—the π granules of Reich—was found. These granules, which are present to some extent in normal peripheral nerves, occur chiefly in the sheath of Schwann.

Various degenerative changes were also found in the spinal cord, mainly in the posterior and lateral columns, but there was no well defined limitation to particular tracts. These changes were accompanied by alterations in the nerve cells of the medulla, pons, cerebellum and cerebrum.

In the abdominal and thoracic viscera the usual conditions of atrophy, fatty degeneration, ulceration, pigmentation, etc. were in evidence, while the skin presented changes in the Malphigian bodies, hyperaemia and other lesions.

The conclusion arrived at, in view of these results, is that in pellagra the morbific agent is probably not a virus but a toxin.

H. M.

Macneal (W. J.). **Observations on the Intestinal Bacteria in Pellagra.**—*Amer. Jl. of the Med. Sciences.* 1913. June. Vol. 145. No. 6. (No. 495). pp. 801-806.

A survey of the faecal bacteria in pellagra by the Illinois State Pellagra Commission shewed that their quantitative relationships differ from the normal and that unusual kinds of bacteria are present. The abnormal types were various in nature and in no case dominant in numbers. One hundred bacterial strains were subjected to agglutination tests, using blood serum from pellagrins and from normal individuals. One of these strains, "No. 67," had the following characteristic—rods 4 by 1·4μ (variable), does not liquefy gelatin, slightly clots milk, produces no gas with glucose, fructose, lactose, saccharose, or mannose, and produces pigmentation on agar. This was agglutinated by the sera of pellagrins but also by the sera of some normal persons. The same culture was now tested with sera from pellagrin

cases of South Carolina, sent by the THOMPSON-MCFADDEN Pellagra Commission. Of 109 pellagrous sera, 74·3 per cent. gave complete agglutination, 10·1 per cent. almost complete, 2·7 per cent. marked, 2.8 per cent slight, and only 10·1 per cent. gave negative reactions. Of 49 controls, 22·5 per cent. gave complete agglutination, 8·2 per cent. almost complete, 26·5 marked, 14·3 per cent. slight and 28·5 per cent. were negative. The results are suggestive, although they do not warrant the assumption of a specific agglutination reaction. From the intestinal contents 693 new bacterial strains have been isolated and tested. No strain similar to "No. 67" has been isolated from the faeces; a few strains from the duodenal fluid, which give the agglutination reaction with pellagrous sera, seem to resemble "No. 67."

H. M.

HILLMAN (O. S.). **Some Hematological Findings in Pellagra.**—*Amer. Jl. of the Med. Sciences.* 1913. Apr. Vol. 145. No. 4. (No. 493). pp. 507-513.

This investigation deals with material sent by the THOMPSON-MCFADDEN Pellagra Commission at Spartanburg, South Carolina, to the New York Post-Graduate School during the summer of 1912. The hemoglobin content, the number of red and white cells per cmm., the differential leucocyte count and general morphologic characteristics of the blood in stained preparations were examined, and in some cases the coagulation time was investigated. The technique is described and tables of the results are given. The authors conclude that a variable degree of anaemia exists in many cases, but that the disease may be present for some time without leading to any anaemic changes. The presence of a leucocytosis is not infrequent and may suggest the possibility of an infectious etiology of obscure origin or be due to complicating disturbances. Twenty-four out of thirty-two differential counts gave an absolute lymphocytosis. No characteristic variations in the large mononuclear leucocytes and eosinophiles were observed.

H. M.

MYERS (Victor C.) & FINE (Morris S.). **Metabolism in Pellagra.**—*Amer. Jl. of the Med. Sciences.* 1913. May. Vol. 145. No. 5. (No. 494). pp. 705-720.

A description of work carried out on patients sent to the Post-Graduate Hospital by the THOMPSON-MCFADDEN Pellagra Commission. The gastric contents were examined and the patients placed upon a weighed diet (lacto-vegetarian and practically purin-free) and the urine and faeces were examined daily for a period of from 7–10 days. The ability to utilise the food taken appeared to be practically normal, and the elimination of mineral and nitrogenous constituents in the urine such as might be anticipated from the dietary and physical conditions of the individuals. The low creatinin coefficients and the elimination of small amounts of creatin in the urine pointed to a lowered physiological efficiency. In six out of 14 cases hyalin casts were found. In eight cases, free hydrochloric acid was not present in the stomach contents, while the total acidities were low and pepsin was absent or present only in small amount. Considerable quantities

of indican were found in the urine and excessive amounts in those cases shewing total anacidity. Some cases with low indicanuria and with free HCl in the gastric juice had a fairly high elimination of ethereal sulphates, but the total ethereal sulphates as well as the indoxyl potassium sulphate were increased in anacidity. The faeces contained abnormal amounts of indol and skatol. Unusual bacterial putrefaction high up in the intestines was indicated.

H. M.

LABORATORY.

OBREGIA (A.) & PITULESCO. **La Séro-Réaction d'Abderhalden dans la Pellagra.**—*Compt. Rend. Soc. Biol.* 1913. Dec. 19. Vol. 75. No. 36. pp. 587-588.

Abderhalden's serum reaction was applied by the authors to seven cases of pellagra, two incipient shewing only cutaneous and gastro-intestinal symptoms, the remaining five being advanced cases with mental disturbances.

The method of dialysis was employed, the technique of ABDERHALDEN and FAUSER being followed. The organs were obtained from an old pellagrin. Of the two incipient cases one was cured and awaiting discharge, and with this case only negative results were obtained; with the other the sympathetic gave positive results, the thyroid feebly positive, the cerebral cortex and the genital glands negative.

Of the five advanced cases all reacted strongly with the cerebral cortex, four feebly with the sympathetic, three feebly with the thyroid and two with the liver and heart. In all cases, negative results were given by the genital glands. The authors conclude that in both early and late stages there is a disturbance of function of the sympathetic, which also explains the results obtained with the thyroid. The reaction with the cortex in all the advanced cases shews an intense disturbance of function of the cerebral cortex.

H. M.

FUNK (Casimir). **Studies on Pellagra. I. The Influence of the Milling of Maize on the Chemical Composition and the Nutritive Value of Maize Meal.**—*Jl. of Physiology.* 1913. Dec. 19. Vol. 47. No. 4-5. pp. 389-392.

Analyses of the milled maize grain and of the millings are given. The second millings from a highly milled grain are shewn to be considerably richer in phosphorus, amino-nitrogen and fats than any other portion of the grain. The suggestion is advanced that the manifestations of pellagra in different countries may be correlated with the extent of milling of the grain.

H. M.

ADLER (Herman M.). **The Experimental Production of Lesions resembling Pellagra.**—*Boston Med. & Surgical Jl.* 1913. Mar. 27. Vol. 168. No. 13. pp. 454-456.

Ten rabbits fed daily with 5 cc. per kilo weight of olive oil developed the blood picture of secondary anaemia within a few days; in four rabbits the blood picture of pernicious anaemia developed in from

two to three months. In six out of ten, severe skin eruptions appeared on the inner surface of the ears and acute enteric symptoms; three of the four rabbits that escaped had been daily dosed with ·3 gr. of quinine for a year previously. The author ascribes the symptoms chiefly to the haemolytic action of the oleic acid, and concludes that a condition characterised by dermatitis and acute enteritis need not be a specific reaction to a specific causative agent, but may be a general reaction common to a large number of pathological conditions.

H. M.

Volpino (G.), & Bordoni (E. F.). **E Possibile un'Immunizzazione attiva dei Pellagrosi ?** [Immunity of Pellagrins.]—*Riv. Pellagrologica Italiana.* 1913. Nov. Vol. 13. No. 6. pp. 81-84.

In experiments carried out on 20 guinea-pigs, ten were injected with extract of maize periodically at intervals of two or three days. After 15 days of the treatment they were fed exclusively on maize, the injections being continued for 20 days more. The other ten were fed on maize, no injections being given.

After 30 days seven of the injected guinea-pigs were still alive while of the ten untreated ones, only three survived. Both treated and untreated ones died after 55 days. Somewhat similar results were obtained in other experiments and the conclusion is arrived at that the injection of maize extract confers a certain resistance during the early stages on a guinea-pig fed on maize. Later on, death ensues in all cases owing to the unsuitability of the maize as food. Attempts to increase the resistance of human beings suffering from pellagra by the injection of maize extract are mentioned. These experiments are based on the hypothesis that pellagra is due to some toxic substance obtained from maize.

H. M.

Volpino. **Ricerche sulla Pellagra**. [Researches on Pellagra.]—*Giorn. R. Accad. Med. di Torino.* 1913. Jan.-Feb. Vol. 76. No. 1-2. p. 42.

A short note of some results obtained in certain experiments in which 100 pellagrins and 78 non-pellagrins were injected with extract of maize. Of the pellagrins injected 90 per cent. gave a positive reaction indicated by nervous and cutaneous manifestations, while only 20 per cent. of the non-pellagrins gave any response.

Guinea-pigs fed on rice and injected after some time with $\frac{1}{2}$–1 cc. of pellagrous blood became ill and soon died. Others fed in the same way but treated with injections of maize extract were somewhat more resistant.

H. M.

Rondoni (Pietro). **Sulla Ipersensibilità delle Cavie Maidizzate di fronte al Siero di Sangue dei Pellagrosi, con Considerazioni sulla Genesi della Pellagra.** [On the Hypersensibility of Guinea-pigs fed with Maize to Pellagrous Blood Serum.]—*Riv. Pellagrologica Italiana.* 1913. Nov. Vol. 13. No. 6. pp. 84-86; and 1914. Jan. Vol. 14. No. 1. pp. 6-8.

The author agrees with Volpino that guinea-pigs fed on maize shew a marked hypersensibility to pellagrous serum and that pellagrous patients shew a certain hypersensibility to extracts of maize, but

considers that the changes observed are perhaps not quite so marked as those described by Volpino. He notes that the researches of Cesa Bianchi, Finato and Novello confirm Volpino's results, while the experiments of Volpi-Ghirardini and Luccari fail to do so or at least are inconclusive.

Szumowski showed that injection of an alkaline solution of zein reduces the coagulability of the blood and the author has noted a similar phenomenon in the case of guinea-pigs fed on maize.

H. M.

Volpi-Ghirardini (Gino) & Zuccari (Giuseppe). **Sulla Ipersensibilità delle Cavie ad Alimentazione Maidica per il Siero di Sangue di Pellagroso.** [On the Hypersensibility of the Maize-fed Guinea-pig to Pellagrous Blood Serum.]—*Riv. Pellagrologica Italiana.* 1913. Sept. Vol. 13. No. 5. pp. 69-71; and 1914. Jan. Vol. 14. No. 1. pp. 9-11.

A description of experiments carried out by the authors to ascertain the effect of maize diet on the hypersensibility of guinea-pigs to pellagrous serum and to aqueous extract of spoiled maize, prepared according to Cesa-Bianchi and Pellardi's method. The guinea-pigs were divided into three groups—(1) fed with spoiled maize; (2) fed with sound maize; (3) kept on a diet of bread and greens. The serum from the same patient was injected at the same time into one or more guinea-pigs from each group; and the experiments were carried out under conditions as comparable as possible. The total number of animals used was small (22), but the authors claim that this was partly compensated for by the care taken with the experiments. The guinea-pigs were first kept on their diet for from 16–36 days before the injection, a period comparable with that used in the experiments of Cesa-Bianchi and Vallardi and of Volpino. Contrary to the results of these latter observers, no animal died in the 24 hours following the injection nor within the following weeks. Pronounced symptoms appeared within half an hour, but after some hours the animals appeared to be quite well. The chief phenomena following the injection (intra-peritoneally) were increased temperature and convulsions accompanied and followed by disturbances of respiration, paresis, retraction of the flanks, erection of the hair, etc. Lowering of the rectal temperature followed injections both of maize extract and of pellagrous serum, and was indistinguishable in guinea-pigs fed on maize and on other food. The convulsive phenomena were more pronounced, after injections of 2–3 cc. pellagrous serum, in guinea-pigs fed with spoiled maize, less pronounced and less constant in animals fed with sound maize, and still less constant in those fed on ordinary diet. In one experiment in which non-pellagrous serum was injected into a guinea-pig fed on spoiled maize they were absent, and they are inconstant after the injection of maize extracts. It is not possible to draw definite conclusions, but there seems to be evidence of a hypersensibility in maize-fed guinea pigs (especially with those fed with spoiled maize) towards pellagrous serum. It is not sufficiently definite to regard it as a specific anaphylactic reaction.

H. M.

Finato (D. ii L.) & Novello (F.). **Ricerche sulla Ipersensibilità dei Pellagrosi.** [Hypersensibility in Pellagrins.]—*Gaz. Internaz. Med. Chirurg. Igiene.* 1913. Nov. 1. No. 44. pp. 1038-1044.

Experiments prove that there exists in pellagrous patients a hypersensibility to extracts of maize. After the injection of maize extract a more or less powerful reaction is obtained in which the chief symptoms are vomiting, increased respiration, rise of temperature, intense local pain at the seat of injection and shivering, followed sometimes by delirium and coma. The reaction gradually disappears with disappearing symptoms, and is generally lacking or very slight in non-pellagrins. If these observations are confirmed, this hypersensibility of the pellagrin to maize extract might serve as a means of diagnosis in doubtful cases.

H. M.

Prevention.

Rivista Pellagrologica Italiana. 1913. Sept, Vol. 13. No. 5. pp. 74-79.—**Per l'Applicazione della Legge 21 Luglio 1902 contro la Pellagra.** [On the Administration of the Law of July 21st 1902 for the Prevention of Pellagra.]

This communication deals with the measures taken for the prevention and cure of pellagra in the Provinces of Bergamo, Brescia, Ferrara, Mantora, Treviso and Udine. The Pellagrological Commission of Bergamo recommends the compulsory feeding of the pellagrous poor with a prescribed diet, as well as other curative and prophylactic measures.

H. M.

Cantarutti (G. B.) & Others. **La Vigilanza sul Mais.** [Supervision of Maize.]—*Riv. Pellagrologica Italiana.* 1913. Sept. Vol. 13. No. 5. pp. 65-66.

A report of the Commission appointed by the Chamber of Commerce of Udine to consider whether the existing regulations for the supervision of foreign and indigenous maize were sufficient. The Commissioners express their belief in the maize theory of pellagra and recommend that the powers already existing under the present laws for the examination of maize should be more adequately enforced. They recommend the institution of a Provincial Pellagrological Inspectorate.

H. M.

FILARIASIS.

Rodenwaldt (Ernst). **Eine neue Mikrofilarie im Blut des Menschen.** [New Microfilaria in the Blood of Man.]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1914. Vol. 18. No. 1. pp. 1-12. With 1 plate & 3 text-figs.

The author amplifies his preliminary note on a new micro-filaria found in the blood of man [see this *Bulletin* Vol. 3, p. 102]. The finer anatomy is described and compared with that of the embryos of *Filaria loa* and *F. bancrofti*. The absence of a sheath in well stained haematoxylin specimens at once differentiates it from those two forms. No periodicity is present, embryos occurring in the blood by day as well as by night. Unfortunately no definite measurements are given, the author at the moment not possessing the necessary apparatus. The question of the embryo being that of the *Onchocerca volvulus* is next discussed. The patient suffered from volvulus tumours over the ribs and under a local anaesthetic these were excised. From the tumour all stages of the *Onchocerca* embryos, from the youngest egg to the fully developed micro-filaria, could be studied. This showed that the younger examples were larger than the older ones and that they possessed a much more limited movement. Finally the author concludes that there is no clear proof that the young of the *Onchocerca* are the same as the embryos seen in the blood and lymph, because in the tumour and in its immediate neighbourhood no identical examples were to be found. He therefore proposes to name this large sheathless filaria of the blood of man "*Microfilaria nuda*."

[It is quite evident that Rodenwaldt has found the same embryos described by Ouzilleau (see this *Bulletin* Vol. 1, p. 419) and by Fülleborn and Simon (*loc. cit.* Vol. 3, p. 100). The paper by the latter authors certainly tends to show that these filariae are the same as the young of *Onchocerca volvulus*. Careful measurements were made by them whereas, as already stated in the text, Rodenwaldt had not the opportunity. It is premature therefore to give this embryo a specific name. It is evident that the embryos of the *Onchocerca volvulus* must escape somehow and the observations made by the authors mentioned above seem clearly to prove how this is accomplished.]

G. C. Low.

Leger (M.), & Le Gallen (R.). **Fréquence de *Filaria bancrofti* chez des Sujets de la Guadeloupe ne présentant ni Eléphantiasis ni Accidents Lymphangitiques.**—*Bull. Soc. Path. Exot.* 1914. Feb. Vol. 7. No. 2. pp. 125-129.

To establish the percentage of individuals from Guadeloupe harbouring the embryos of *Filaria bancrofti* in their blood, the authors examined 150 newly arrived recruits from that island at Marseilles. Of these 23, or 15·33 per cent., were infected, the embryos found giving the characteristics of those of *Filaria bancrofti*. These recruits showed no signs of filariasis, no lymphangitis, no chyluria, nor were any of the lesions of elephantiasis present. Eosinophilia occurred in the blood of several. A table showing the locality from which each of the infected persons came is given and this is compared with one by Low for the British West Indian Islands. A comparison of these

indicates that Guadeloupe is heavily infested with filariasis, its percentage being lower than St. Kitts, but, on the other hand, higher than Barbados and Trinidad. *Filaria demarquayi* was not found in the 150 Guadeloupe examinations.

G. C. L.

Noc (F.), & Stévenel (L.). **Filariose, Lymphangite et Eléphantiasis à la Martinique.**—*Bull. Soc. Path. Exot.* 1913. Dec. Vol. 6. No. 10. pp. 663-667.

Among 4,000 people twelve cases of definite filariasis were seen. These cases included those where the presence of the microfilaria in the organs could be demonstrated. Out of the same number 88 cases of endemic lymphangitis were noted. These are classified as follows :—

(1) Cases of acute recurring lymphangitis with a tendency more or less marked to the development of elephantiasis, 73.

(2) Cases of elephantiasis complicated with frequent attacks of acute lymphangitis, 5.

(3) Cases of elephantiasis without return of further attacks of lymphangitis, 10.

Out of these 88 cases the blood was examined in 24 persons by night alone, and in 14 day and night without any microfilariae being found.

Of 73 persons examined at night, without apparent filarial lesions and with no signs of lymphangitis, four were found to be harbouring the embryos of *Filaria bancrofti* in their blood. Reference is made to the so-called Dermococcus described and cultivated by Le Dantec and Dufougéré. The authors state that this organism can be easily isolated from the regions affected with lymphangitis. Haemocultures taken aseptically from veins and from the lymph of the enlarged glands give the same results. In a section of a lymphatic gland removed from a case of adeno-lymphocele a great number of similar organisms were seen in the lymph.

G. C. L.

Des Barres (Le Roy). **Filariose - Variocèle lymphatique - Présence d'un Ganglion dans le Canal Inguinal simulant une Epiplocèle (Observation résumée).**—*Bull. Soc. Méd.-Chirurg. de l'Indochine.* 1913. Dec. Vol. 4. No. 10. pp. 448-450.

A young man was seen by the author a year ago suffering from lymphatic varicocele on the left side with the presence of filariae in the blood. Twelve months later another swelling appeared which resembled very closely an epiplocele. As the diagnosis, however, was doubtful an incision was made over it. The swelling was found to be due to an enlarged lymphatic gland of the size and form of a haricot bean lying in the middle of the cord. It presented a kind of pedicle which penetrated into the abdomen. No hernial sac was present, but the lymphatics were dilated. These together with the gland were removed. An examination of the latter by Degorce left no doubt about the mass being a lymphatic gland. The author reports the case as being one of great interest.

G. C. L.

Külz (L.). **Bemerkungen zu Ziemann "Tropische Gewebsentzündungen infolge von Filariainfektion" in Heft 14, 1913 des Archivs.** [Remarks on Ziemann's paper, "Tropical Tissue-Inflammations caused by Filarial Infection."]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1914. Mar. Vol. 18. No. 5. pp. 164-166.

The following remarks are made in the paper. The author does not consider that *Filaria loa* is the sole cause of tropical muscle abscesses. He believes that similar lesions may, in some instances, be caused by other filariae but, as he points out, these abscesses are generally deep in the muscles and not in the connective tissues where the filariae chiefly lie. *Onchocerca volvulus* occurs in Kamerun and has to be considered as an etiological factor, but Külz like Ziemann has never seen this infection in Europeans. The author proposes to publish further information upon the subject in the *Centralblatt für Bakteriologie* at an early date.

G. C. L.

Rauenbusch. **Beitrag zur Filariosis des Auges.** [Contribution to Filariasis of the Eye.]—*München. Med. Wochenschr.* 1913. Dec. Vol. 60. No. 52. p. 2910. With 1 text-fig.

A case of *Filaria loa* seen in Buenos Ayres is described. The patient had acquired the infection in Kamerun where he had suffered from a Calabar swelling of the left arm. Some years afterwards whilst residing in Buenos Ayres an adult male *Filaria loa* appeared in the eye, and was extracted by the author under cocaine. An illustration of the parasite lying in the conjunctiva is given.

G. C. L.

Suldey (E. W.). **Existence d'une Filaire et d'une Microfilaire chez le Caméléon de Madagascar.**—*Bull. Soc. Path. Exot.* 1914. Jan. Vol. 7. No. 1. pp. 70-71.

The examination of the blood of a chameleon revealed the presence of microfilariae with characteristics as follows:—non-striated, easily stainable, well-developed sheath, extremely rapid undulatory movements in the fresh state, with measurements in dried preparations of 120–150μ by 8–10μ. In the subcutaneous cellular tissue of the neck adult filariae, apparently the parent forms of the microfilariae of the blood, were found. These measured 3–12 cm. in length by 2 mm. in breadth. Of thirty chameleons examined twenty-five were found to be infected.

G. C. L.

Turkhud (D. A.). **Dracontiasis.**—*Proc. Second All-India Sanitary Conference,* 1912. Vol. 3. pp. 118-120. 1913. Simla: Govt. Central Branch Press.

The author describes observations carried out by him at the Parel Laboratory, Bombay, showing that the larvae of the guinea worm are actually swallowed by the cyclops, the intermediate host. [See this *Bulletin*, Vol. 2, p. 636.] A number of monkeys were fed by the

mouth on cyclops infected for periods varying from 6 to 53 days. Differential leucocyte counts were conducted at subsequent dates. The first monkey fed on cyclops, infected only six days previously to the date of feeding, showed no changes in its leucocytes three months afterwards. The second monkey, fed on cyclops infected for ten days, showed a marked eosinophilia after three months. A careful post mortem examination of this monkey was made later, but no guinea worms were detected either in the internal organs or in the cellular tissue around the viscera. In another experiment guineaworm larvae were found inside a Stegomyia larva, but whether they undergo any further development in this situation was not ascertained.

BERIBERI.

i. Malay States. **Twelfth Annual Report of the Institute for Medical Research, Kuala Lumpur, Federated Malay States, 1912.** [Fraser (Henry), Director.]— 71 pp. 8vo. 1913. Kuala Lumpur: F.M.S. Goverment Printing Office. [Beriberi, pp. 5-16.]

ii. **Report from the Institute for Medical Research [Kuala Lumpur] for the Period 1st April to 30th September, 1913.** [Fraser (H.), Director.]—Received in Colonial Office, Jan. 24, 1914.

i. A short review is given of recent research relating to oriental beriberi, and the various resolutions that have been passed condemning the use of polished rice as a staple diet for men are mentioned. The author emphasizes the importance of using the ·4 per cent. P_2O_5 as a standard, but draws attention to the fact that even this safe rice may be rendered unsafe by cooking at a high pressure in steam. He describes some experiments which he carried out in reference to Breaudat's theory that storage may convert a harmless into a harmful rice. "These experiments do not demonstrate the necessity for rice being consumed as soon as possible after milling, but they do emphasize the importance of care in the storage of rice." In 1911 no less than 5,340 cases of beriberi were admitted into the government hospitals of the Federated Malay States, and the incidence of this preventable disease was not less than 12·3 per thousand. He calculates that 15,830 cases must have occurred in the Straits Settlements in that year. Preventive and curative methods are therefore urgently required. He describes the various methods of preparing the remedial agent from the rice polishings, so as to supply it in as palatable a form as possible, and he gives details of some experiments on fowls treated with the various preparations. The final extracts contained less of the non-essential materials, yet retained their active properties. Further experiments are in progress to prepare the remedy by less expensive methods. The author states that an effective liquid extract can be prepared, of which a dessert spoonful represents the material obtained from two ounces of fat-free polishings, the daily dose of an adult suffering from beriberi; but rapid recovery in chronic cases cannot be expected.

ii. In this report an account is given of the Wollaston-Kloss expedition into New Guinea, the absence of beriberi among the natives employed being specially referred to. Unpolished rice formed a staple diet, whereas other expeditions, both before and after, which were supplied with polished rice, suffered severely. The author does not accept Funk's formula for the curative substance (vitamine) and again points out that the essential preventive and curative properties are contained in the sub-pericarpal layers and not in the pericarp itself.

P. W. Bassett-Smith.

Fraser (H.) & Stanton (A.T.). **Unpolished Rice and the Prevention of Beriberi**—*Lancet.* 1914. Jan. 10. pp. 96-98. With 1 text fig.

This paper sets out very concisely the views held by the authors of the causation and prevention of beriberi, but contains no new information.

P. W. B.-S.

Vedder (Edward B.). **Beriberi.**—viii+427 pp. With 51 text-figs., 1 folding chart and 5 coloured plates. 1913. London: John Bale, Sons & Danielsson, Ltd. [18*s.* net.].

A review of this book appears on p. 332.

Clarke (J. T.). **The Etiology of Beriberi.** [Correspondence.]—*Brit. Med. Jl.* 1914. Jan. 10. pp. 113-114.

The author discusses the infective theory of beriberi, and the arguments brought forward by Stanley (see this *Bulletin*, Vol. 2, p. 602) and shows that they are refuted by the work of Braddon, and of Fraser and Stanton, and also by the statistics given by Fletcher of the Kuala Lumpur lunatic asylum and others.

P. W. B.-S.

Galt (W. S.). **The Etiology of Beriberi.** [Correspondence.]—*Brit. Med. Jl.* 1914. Feb. 28. pp. 512-513.

This is a personal protest against the acceptance of the rice-eating theory, the author having found twenty cases of beriberi in the port of London on board a Norwegian ship just arrived from South America. The crew had not used rice at all and the incidence was higher among the officers than the men. It is stated that no cases had occurred in the ship before and there was no overcrowding, but no other details are given.

P. W. B.-S.

Arnold (W. J. J.). **The Etiology of Beriberi.**—*Brit. Med. Jl.* 1914. Feb. 7. pp. 299-300.

The article commences with the statement that "in view of the widespread tendency to accept as proved that beriberi is due to eating decorticated rice it behoves those whose experience contra-indicates this theory to express their opinions." [It is evident that the author has not grasped the modern theory of the causation of beriberi, for no one now believes that *all* cases are due to ingestion of decorticated rice, but that a deficiency of the necessary factors (or vitamines) in a variety of foods may lead to the development of this disease.] The author appears to hold that the disease is infectious and is probably conveyed by ecto-parasites. He states that in endeavouring to trace the origin of cases on board ship he has never failed to find one at least of three circumstances: (*a*) The existence of beriberi in the ship on a previous voyage; (*b*) The presence on board of a member or members of the crew who had previously had beriberi; (*c*) some member of the crew who had recently sailed on a ship where beriberi prevailed, though he had not then had the disease himself.

[No fresh facts are brought forward and the arguments used are not convincing.]

P. W. B.-S.

Parker (Herman B.). **A Report on Beriberi in the County Jail at Elizabeth, N.J.**—*U.S. Public Health Rep.* 1914. Feb. 6. Vol. 29. No. 6. pp. 339-341.

The author was sent to investigate a small outbreak of a disease which had occurred in the county jail at Port Elizabeth, New Jersey, U.S.A. He found three cases in hospital and three others in the jail suffering from a disease called "Jail Oedema," which he considered to be beriberi. One of the three hospital cases showed evidence of albuminuria and the knee reflexes were present; another with general symptoms of beriberi suffered from haemorrhage from the gums. No details as to the food or hygienic conditions are given. P. W. B.-S.

Richter (Hugo). **Zentrale Veränderungen bei experimenteller Beriberi der Taube.** [Changes in the Central Nervous System of Pigeons in Experimental Beriberi.]—*Zeitschr. f. d. gesamte Neurolog. u. Psychiat.* Orig., 1913. Dec. 23. Vol. 21. No 1-2. pp. 172-181. With 1 text-fig. and 2 figs. on a plate.

This paper is mostly devoted to the histo-pathological changes found in the central nervous system of five pigeons fed upon polished rice. Four died and one was killed 24 hours after its cure, which was brought about by giving it unpolished rice. The first pigeon died on the third day of the illness, and the changes in the nervous centres were not marked. The second on the fifth day received unpolished rice and was cured; in this one very marked changes in the central nervous system were found. In a third, which showed the most severe symptoms, the degenerative changes in the central nerve cells were most marked. Very full descriptions of the pathological changes are given; the areas most affected were groups of cells in the corpus bigeminum (optic lobe) on both sides, the large cells being swollen and vacuolated. The author states that the clinical symptoms and anatomical changes in pigeons are quite distinct from those seen in men who have suffered from beriberi, the etiological factor alone being the same. His view is that the disease is caused by a poison contained in the polished rice and that the anti-body is in the silver layer. His earliest observations on the affected pigeons led him to notice the cerebellar-like gait and movements. He gives the following conclusions: The clinical picture of experimentally produced beriberi in pigeons is that of a severe disturbance of the centre of gravity. There are marked hyperaemia and extravasations in the central nervous system, with progressive degeneration of the nerve cells. The causal connection between the symptoms of poisoning and a cell group, always severely affected, belonging to the sphere of influence of the cerebellum may be accepted. The histological conditions found resemble those morphological changes caused by various intoxications which are known to affect the central nervous system.

P. W. B.-S.

Priest (R. C.). **Some Observations upon Thirty-one Cases of Multiple Peripheral Neuritis amongst European Troops in India.** —*Jl. R. Army Med. Corps.* 1914. Feb. Vol. 22. No. 2. pp. 173-185. With sketch plan.

The author describes a disease of obscure origin which became

prevalent amongst the men of the 3rd Battalion Middlesex Regiment during the hot season of 1912 and the preceding year at Lebong, near Darjeeling. The disease was at first thought to be beriberi, the regiment having recently come from Singapore, but later the diagnosis was changed to multiple peripheral neuritis. Some of the men recovered completely after leaving the endemic area; others became chronic invalids and had to be sent to England. There were 31 cases. No evidence of alcoholism, syphilis, or metallic poisoning could be obtained, and the food supply was good. There seemed some reason for considering the disease to be infective, but no definite proof was obtained. The clinical symptoms were irregular anaesthesia, oedema, cardiovascular changes, diminished power of the lower limbs, and debility. The affection differed entirely from beriberi in that, firstly, the great majority of those affected showed normal knee jerks (21)—in others these were exaggerated, and in only two were they absent—secondly, there was neither general nor local wasting.

[This paper is especially valuable, as it points out very clearly that there is a group of conditions, not uncommonly present in tropical and sub-tropical zones, associated with symptoms of peripheral neuritis, simulating true beriberi in many features, but apparently quite distinct, about the etiology of which we are at present ignorant.]

P. W. B.-S.

Potter (T. J.). **Report on Peripheral Neuritis in Jamaica. With Comments by District Medical Officers.**—8 pp. 1913. Jamaica: Government Printing Office, Kingston.

Large numbers of cases of peripheral neuritis occurring in Jamaica have recently attracted considerable attention and different views have been advanced as to the nature of the disease. Potter, who now reports on these cases, believes that some are cases of pellagra, while others do not come under any well-recognised type.

The initial symptoms of the disease are, in the main, those met with in any case of peripheral neuritis—numbness, tingling, cramps, loss of power, etc., but in addition loss of hearing and defective vision have been noted.

Males and females would appear to be attacked in about equal proportion, but the disease does not appear to be common before puberty. It is commoner in the rural districts than in the towns, and occurs at all elevations in the island. Whole families have been reported to be simultaneously attacked.

As regards the diagnosis, there are no characteristic skin lesions nor mental disturbances as are found in pellagra. From beriberi the author states that the condition can be distinguished by the absence of oedema and of cardiac disturbances. Some even have regarded it as due to malaria but, as the author points out, if this were so, one would naturally expect to find the incidence greatest in the districts where malaria is most common, but this does not appear to be the case. Forms of neuritis similar to the above have not been noted in countries where malaria is as common as in Jamaica.

Potter believes that the disease resembles a condition described by Wellman in Central Africa as epidemic neuritis, but in that disease skin lesions do occur; no mention is made of eye symptoms or of deafness.

A synopsis of 35 cases is given, comments by district medical officers being appended. A variety of expressions, as to what the condition is due to, appears in these. Most agree that it is not beriberi. One believes that it may be due to alcohol or syphilis, while another correctly points out that the disease has no connection with pellagra.

[Further observations are evidently required upon this interesting condition; such symptoms have not, so far, been described in pellagra.]

G. C. L.

SCHAUMANN (H.). **Bemerkungen zu der Veröffentlichung von Casimir Funk: "Ueber die physiologische Bedeutung gewisser unbekannter Nahrungsbestandteile, der Vitamine."** [Remarks on Funk's Publication—The Physiological Significance of certain unknown Food Substances called Vitamines.]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1914. Feb. Vol. 18. No. 4. pp. 125-131.

The paper is controversial throughout and contains no new facts. The author maintains that he has isolated a variety of food substances from bull's testicle, wheat bran, etc., which exert a pronounced prophylactic and curative influence on the experimentally produced disease, and he still considers that a very marked anti-neuritic power must be ascribed to certain phosphorus compounds, though not to all these. He meets FUNK'S argument, that these properties are due to impurities of nucleic acid which have not been separated, by pointing out that even if this did occur, the amount remaining would be too small to have any effect, and that the nucleic acid is originally derived from phosphorous compounds. Schaumann states that he never ascribed the protective power in his substances to phosphorus itself, but only to certain undefined phosphorus compounds in which FUNK'S Vitamines exist in greatest quantities. He questions whether FUNK'S nucleic acid theory is right, but believes rather that the anti-neuritic property is present in a variety of compounds found in animal and vegetable life, the mother substance being more efficacious than any split off vitamine. He argues that as FUNK'S beriberi vitamines have so far only been tried on birds (chiefly pigeons) with good results, other trustworthy experiments are required to establish their curative value. He then refers to the vitamines for scurvy prepared from lime juice, which had very little effect upon guinea-pigs and have not been tried on man. Vitamines which influence growth are stated by FUNK to differ from beriberi vitamines. Schaumann mentions ISOVESCO'S experiments* with substances derived from testicle, ovaries and cod liver oil, which are lipoid in character [the two former are probably hormones.]

At the conclusion Schaumann allows FUNK every credit for having been the first to isolate the anti-neuritic substance from rice-bran, but whether this substance, the formula of which has been changed, is pure, must be left undetermined for the present.

P. W. B.-S.

**Compt. Rend Soc. Biol.* 1913. Vol 75. pp. 393 & 445.

In a summary of the paper by VOEGTLIN and TOWLES—"The Treatment of Experimental Beriberi with Extracts of Spinal Cord"—printed in Vol. 2, p. 609 of this *Bulletin*, the authors' conclusions were quoted and commented on. Dr. VOEGTLIN writes that in the conclusions the words "yeast, nucleic acid" should have ran "yeast-nucleic acid." It was this substance, not yeast, which was found to have no effect on experimental beriberi, as is evident when one reads the body of the paper.

MISCELLANEOUS.

Fricks (L. D.). **Rocky Mountain Spotted Fever. A Report of its Investigation and of Work in Tick Eradication for its Control during 1913.**—*U.S. Public Health Reps.* 1914. Feb. 20. Vol. 29. No. 8. pp. 449-461.

The author was detailed to make investigations upon Rocky Mountain spotted fever in Montana during 1913 and to co-operate with the Montana State Board of Health as to the measures necessary for its eradication from certain selected areas. As the site of his operations he selected the southern half of the Bitter Root Valley. Tick eradication measures and laboratory investigations had been carried out here two years previously.

Up to the present time the measures adopted for tick eradication have been (1) dipping of domestic animals in arsenical dips; (2) killing of wild animals within a limited area. The following dipping solution was used in the beginning of the season :—

Sodium carbonate (sal soda)	pounds	24
Arsenic trioxide (white arsenic)	,,	8
Pine tar	gallons	2
Water to make	,,	500

It was found, however, that this was not strong enough to kill the engorged female ticks, so various stronger solutions were tried. As the ticks are often found attached near the horns and ears of the animal it is difficult to reach them here with solutions, as submersion for long periods of time is not feasible. No money was at first available for the destruction of wild animals, but later in the season ground squirrels were attacked. Carbon bisulphide pumps, as used by the Public Health Service on the Pacific coast, were procured and experiments were carried out to see if the squirrels could be attacked while hibernating in their holes. Tick surveys were also carried out at various places.

As regards sheep grazing, so many factors enter into this method as a means of tick eradication that the value derived therefrom cannot be definitely decided until such experiments are carried out on a very large scale.

The author believes that the geographical distribution of Rocky Mountain spotted fever is much more extensive than is usually supposed. Letters sent out to the Health Officers of the different States resulted in the notification of cases resembling spotted fever, but in some of these the diagnosis was open to doubt. A list of these districts is given.

G. C. Low.

Joyeux (C.). **Contribution à l'Etude des Nodosités juxta-articulaires.**—*Bull. Soc. Path. Exot.* 1913. Dec. Vol. 6. No. 10. pp. 711-714.

Juxta-articular nodules were first described by Jeanselme in 1905 and after that were noted and studied in different parts of the world. Fontoynont and Carougeau in Madagascar on examination of one of these nodules, which contained grumous pus and white grains, with mycelial filaments microscopically, concluded that the parasite belonged to the genus *Discomyces* and it was named *Discomyces carougeaui*. Neveux,

on the other hand, who examined what were apparently similar nodules in Senegal, found that they consisted of a fibrous centre and did not show any signs of a mycelium. MOUCHET and DUBOIS in the Belgian Congo have also observed numerous nodules which they believed to be of the nature of yaws. OUZILLEAU in the region of M'bomou believes that they are the cysts of *Onchocerca volvulus*. The author describes three cases which he has studied himself in Guinea. He finds that their microscopic structure differs from that described by FONTOYNONT and CAROUGEAU and approaches very closely that seen by NEVEUX. They consisted of a sclerotic tissue with inflammatory foci. Iodide of potassium cured them and the author believes that this is an argument in favour of their mycotic nature. He concludes that juxta-articular nodosities are a clinical syndrome brought about by different causes. G. C. L.

ROGERS (Leonard). **Gleanings from the Calcutta Post Mortem Records. No. viii (concluding). The Primary Causes of Death and the most frequent Errors of Diagnosis in 1,000 Medical Post Mortems.**—*Indian Med. Gaz.* 1914. Feb. Vol. 49. No. 2. pp. 41-45.

A table gives the percentage of deaths from tropical diseases; these were as follows:—

Fevers (Malaria 1·7, Kala-azar 9·1 and Plague 0·6)	11·4
Beriberi and epidemic dropsy	·4
Cholera	10·7
Dysenteries	10·5
Amoebic liver abscess	2·2
Total ..	35·2

This shows that a little over one-third of the total deaths taken from the Calcutta post-mortem records were due to tropical diseases.

Errors in the diagnosis of dysenteries were fairly frequent. For example, tubercular diarrhoea and simple diarrhoea were mistaken for amoebic dysentery four times, peritonitis twice, tubercular peritonitis, hepatitis, gangrene of rectum, intestinal obstruction, bronchopneumonia, malaria, fever and anaemia, once.

As regards bacillary dysentery 12 out of 36 or one-third were wrongly returned, including five in which death took place within two days of admission. In four cases each simple diarrhoea and tubercular diarrhoea had been diagnosed, while in one each phthisis, acute yellow atrophy of the liver, cholera, remittent fever and meningitis had been suggested clinically. G. C. L.

HILL (Leonard). **The Working Power of the White Man in the Tropics and the Electric Fan.**—*Brit. Med. Jl.* 1914. Feb. 7. p. 325.

The author states that the electric fan has revolutionised the conditions for civilian work in houses in the Tropics. The rapidly moving air drives the stagnant atmosphere away and brings comfort and increased working power. Exposed to the sun however the white man is not comfortable nor happy doing field labour in the Tropics. His part is to organise and overlook whilst that of the dark skinned races is to do the manual labour. How far important out-door labour

could be made more possible, by the use of powerful fans, for white men is a matter, according to the author, for the engineer to determine.

G. C. L.

CHALMERS (Albert J.) & ARCHIBALD (R. G.). **Two Early Eighteenth Century Treatises on Tropical Medicine.**—*Proc. Roy. Soc. Med.* 1914. Feb. Vol 7. No. 4. (Section of the History of Medicine.) pp. 98-106.

A short description is given of the two works. The first treatise ("Traité des Maladies Particulieres aux Pays Orientaux, et dans la Route, et de leurs Remedes," by D. L.F.) forms the second or medical portion of Le Sieur Luillier's "Nouveau Voyage aux Grandes Indes," which was printed in Rotterdam in 1726. The authors have been unable to trace the writer's name, as he merely writes under the appellation of D. L. F.

The second treatise ("The Sea-Surgeon, or the Guinea Man's Vade Mecum," by T. AUBREY, M.D.) was printed in London in 1729.

In the oriental treatise dysentery, small-pox, snake bite, *bicho*, sea-sickness, scurvy and colic are described. There were three varieties of bicho peculiar to Brazil, the first obviously the guinea worm, *Dracunculus medinensis*, Linnaeus, 1758, the second the jigger, *Dermatophilus penetrans*, Guérin, 1838, the third epidemic gangrenous rectitis.

In the Sea-Surgeon's Vade Mecum, which was written primarily for medical men connected with the slave trade, diseases such as fevers (malaria), filariasis, diarrhoea and dysentery, intestinal obstruction and colic, quinsy and pleurisy are discussed.

The authors conclude by making some interesting remarks upon the two works.

G. C. L.

FRANCIS (Ernest E.). **What is Chaulmoogra Oil?** [Correspondence.] —*Lancet.* 1914. Mar. 7. p. 718.

The author writes to say that nearly all the so-called chaulmoogra oil upon the European market is spurious or adulterated. The true chaulmoogra oil is expressed from the seeds of *Taraktogenos kurzii*. In 1912 the crop of seeds of this plant having failed almost completely, an oil obtained from the seeds of *Hydnocarpus wightiana* was put on the market as pure chaulmoogra oil. The importance of this substitution is that, though similar in composition and appearance, the product from the *Hydnocarpus* has little therapeutical value in leprosy. The locality where *Taraktogenos kurzii* occurs is a limited one: the Chittagong Hill tracts, Burma and parts of Assam. Specimens of both of these oils have been forwarded to Mr. MARTINDALE, Mr. PARRY and Mr. SQUIRE in London.

[According to the Indian and Colonial Addendum (1900) to the British Pharmacopoeia (1898) chaulmoogra oil is obtained by expression from the seeds of *Gynocardia odorata*, but the matter of the exact source of the oil is still in an unsatisfactory condition. KING supports Francis in his assertion that the oil comes from the seeds of the *Taraktogenos kurzii*.]

G. C. L.

DENGUE AND UNCLASSED FEVERS.

GAIDE. **Note sur la Dengue en Annam-Tonkin.** [Clinique d'Outre-Mer.]—*Ann. d'Hyg. et Méd. Coloniales.* 1913. Oct.-Nov.-Dec. Vol. 16. No. 4. pp. 1177-1181.

Dengue has been reported from this region since 1890, but it was not till 1905 that serious epidemics occurred. The author gives a short description of four of these. The first was imported to Haiphong from Cochin China in April 1905 by naval ships. It spread to the shore, affecting practically all the white population, military and civil, approximately 700 persons. The indigenous population was immune. The last cases were noted in January 1906. The second epidemic commenced in June 1906, affecting only the naval and military forces, and lasted till December. It was less severe than that of 1905, but gastro-intestinal symptoms were more marked, with fever, generalised pains and discrete eruptions. From Haiphong the disease spread to Nui-Deo, Tourane and Quang-Yen. In the third epidemic, which occurred in 1907, Haiphong was free, but the disease was very severe in Hanoi from October to November among the soldiers in the citadel, the natives being again immune. The fourth epidemic occurred at Hanoi, from July 1907 to February 1908, among the civil population; the disease was very mild and the rash was either absent or very slight. The course of the epidemics was very similar; they commenced with the hot weather and terminated quickly at the first appearance of the cold season.

P. W. Bassett-Smith.

ALFRED-KHOURY (M.) **L'Insuffisance Surrénale dans la Fièvre Dengue.** —*Bulls. et Méms. Soc. Méd. des Hôpit. de Paris.* 1913. Nov. 13. 3e Série. 29e Année. No. 32. pp. 498-499.

The author draws attention to the valuable work of Prof. de BRUN on dengue and to his researches at Beyrouth in particular, also to the work of SERGENT and others on supra-renal insufficiency in acute infections. In this disease the convalescence is so prolonged and the asthenia so marked that deficient secretion of these organs seemed to be probable. With this view he studied the last seven cases of an epidemic at Beyrouth in 1912, and though the numbers are small to dogmatise on, he draws the following conclusions. (1) The syndrome of deficient supra-renal secretion, if not constant, is at least very frequent in dengue fever. (2) The supra-renal asthenic condition is the chief characteristic. (3) The use of solution of adrenalin, xxx drops of 1/1000 solution given by the mouth, shortened the period of convalescence.

In this last epidemic grave cases of the disease were observed for the first time in Syria. P. W. B.-S.

DE LUCA (Michele). **Sulla Febbre dei Tre Giorni a Parghelia (Catanzaro).** [Three-day Fever in Parghelia (Catanzaro).]—*Malaria e Malattie dei Paesi Caldi.* 1914. Jan.-Feb. Vol. 5. No. 1. pp. 23-25.

A description is given of two epidemics of three-day fever which occurred during 1911–12 at Parghelia, in Sicily; the cases were

at first mistaken for influenza. The infection spread rapidly and soon cases were found throughout the buildings which had been occupied by the inhabitants since the earthquake of 1905. Out of a population of 2,500 there were about 300 cases, but undoubtedly many of the milder forms were not recorded. The author states that before 1911 no cases had been noted. With reference to the etiology, it is shown that during June and July the men of Parghelia communicated by boat freely with the coast towns of Palermo, Messina etc., and that in these places, which are infested by pappataci flies, the men contracted the disease and brought back both the virus and the flies to uninfected places. A description of the clinical course of the disease is given. Though the fever lasts only three days, yet it produces a marked debility for about 11 days, incapacitating the men from work, and as the infection continues from June to October there is a considerable monetary loss both to the person and the district. The author recommends that individuals should avoid the source of infection; that the government should cause the old partially destroyed houses to be properly rebuilt; that the defects in the streets be made good, the water supply improved, and general hygiene with regard to human and animal refuse attended to.

P. W. B.-S.

Nicolas (Ch.). **Quelques Cas de Fièvres d'Origine indéterminée simulant le Paludisme en Nouvelle-Calédonie.**—*Bull. Soc. Path. Exot.* 1914. Feb. Vol. 7. No. 2. pp. 133-136.

During a stay of three months at Bourail, the most thickly populated district of New Caledonia, cases of fever simulating malaria were seen, but the author was never able to find any anopheline mosquitoes or parasites in the blood of the cases. The clinical course of four cases is given, more or less in detail. In the first an infant showed signs of tuberculosis and did not respond to quinine; the second, aged 28, had an irregular intermittent fever which responded to quinine; the third, aged 18, came from a district where many were attacked with fever of a typhoid type. The fourth case was interesting, at first like severe typhoid with haemorrhages, large spleen and diarrhoea, but with a negative Widal reaction. The fever terminated by lysis but relapsed, when the spleen became enormously enlarged. No parasites could be found and splenic puncture gave negative results. As there was no improvement under quinine treatment, and a fatal result was feared, a 30 mgm. dose of neo-salvarsan was given intravenously, which caused a rapid improvement, and after a second dose the cure was completed. Cases of this local fever are said to be common, but as the author was unable to find evidence of malarial parasites he does not feel justified in describing the disease as malaria.

[Much more clinical and laboratory research is required to establish the identity of the disease or, as it would appear, the various diseases met with in this area.]

P. W. B.-S.

Conor (A.). **Sur Quelques Nouvelles Observations de Fièvre Boutonneuse.**—*Arch. Inst. Pasteur de Tunis.* 1913. No. 1/2. pp. 116-117.

The author calls attention to some other cases of "Fièvre Boutonneuse" or macular fever, a condition first described as a special entity by himself and Bruch. Reference is made to cases seen by Gabbi in Tripoli [see this *Bulletin*, Vol. 2, p. 109] and also to a case mentioned by Balfour in a soldier at Khartoum. Finally MacNaught in South Africa has seen a fever distinct from typhoid and paratyphoid and also from dengue, typhus and pappataci fever, which has the following characters and is probably an example of macular fever: Rapid onset, gastric distress with constipation, pain in the limbs, generalised eruption specially localised on the palms of the hands and soles of the feet, fall of temperature in ten to fourteen days, with rapid convalescence without relapse.

[Further observations on this fever from other parts of Africa should prove of value.]

C. C. L.

In the summary of the paper by Smith, Lynch & Rivas, "On the Transmissibility of the Lepra Bacillus by the Bed Bug," (this *Bulletin*, Vol. 3, p. 187), it was implied, as in the original paper, that Nuttall was responsible for the suggestion that bugs deprived of their antennae will feed on anything. This suggestion was in fact Hindle and Merriman's, whose article is quoted on page 188 of that number.

BOOK REVIEWS.

FUNK (Casimir). **Die Vitamine: ihre Bedeutung für die Physiologie und Pathologie mit besonderer Berücksichtigung der Avitaminosen: (Beriberi, Skorbut, Pellagra, Rachitis). Anhang: Die Wachstumsubstanz und das Krebsproblem.** [The Vitamines: their Physiological and Pathological Significance especially with regard to the "Avitaminosen" (Beriberi, Scurvy, Pellagra and Rickets). Appendix: The Growth Substance and the Cancer Problem.]—viii+193 pp. With 38 text-figs. and 2 plates. 1914. Wiesbaden: Verlag von J. F. Bergmann. [Mk. 8. 60.]

This volume deals with a group of diseases—Beriberi, Scurvy, Pellagra and Rickets—in which it is assumed that the etiology depends on the absence from the food of certain essential substances named by the author "Vitamines". A very good account of the clinical symptoms associated with these diseases, together with a general survey of the distribution, etiology and other important data are given. At the end of each chapter an up-to-date bibliography of the literature greatly enhances the value of the articles. The etiology of these diseases, however, is still to a great extent unknown, and it is at least premature to include them all under the term "deficiency diseases." In order to review the claims advanced by the author, it is necessary to consider the state of the subject prior to Dr. Funk's investigations. As long ago as 1897 EIJKMAN showed that polyneuritis of fowls, induced by a diet of polished rice, could be prevented by the addition to the diet of the rice cortex. He found that the active substance contained in the cortex was dialysable and not precipitated by alcohol. These observations were corroborated later by various observers, and in 1910 FRASER and STANTON made an attempt to characterise the substance more closely. They ascertained that the active substance was soluble in strong alcohol, and that an alcoholic extract was capable of curing fowls suffering from beriberi. In 1911, when Dr. Funk undertook his investigation, the above facts were known and on this basis he set out to discover if possible the chemical nature of the substance. He claims to have done so and gave formulae—differing in different papers—for the supposed substance. This part of the subject being purely chemical need not be discussed here, but the evidence brought forward in support of this claim is not sufficiently convincing for any chemist to accept it. One is therefore forced to the conclusion that the isolation and identification of the active substance in beriberi remains for the future. Dr. Funk has shown, in extension of the work of EIJKMAN, FRASER and STANTON and others, that the substance is precipitated by reagents which precipitate bases, but has in the reviewer's opinion failed to isolate it in a pure state. We are therefore in much the same position as we were years ago, though the fact that the unknown substance has been dignified by a name—"Vitamine"—has helped to focus attention on the subject.

The present position of the etiology of beriberi and scurvy leaves no doubt that these diseases are due to the lack of some necessary substance in the food, and that this substance is capable of acting in minute quantities. In pellagra, however, the question is by no means settled, and while future research may bring its etiology into line with that of beriberi, no unbiassed mind can at the present time afford to neglect other possible factors. The same remarks apply to rickets, the cause of which is quite uncertain. Speculation in such cases is quite justified, and is often useful in opening up new lines of research, but great care should be taken that such speculation is not put forward in such a way as to convey to the reader that he is dealing with ascertained facts.

A chapter on growth and the cancer problem closes the book. Lately it has been shown by various observers that small quantities of certain unknown substances are necessary for growth in animals. None of these observers, however, were able to ascertain the chemical nature of these substances, but Dr. Funk states that they are vitamines. In view of what has already been said as to the position of "vitamine," it is obvious that

this does not add much to our knowledge of the subject. The book abounds in statements which are based on nothing more than hypotheses and speculation, and while there is a good deal of useful information and suggestion it would be more scientific not to assume ideas as facts until they have been experimentally proved as such. A number of good photographs of beriberi and pellagra in man and animals are given.

Leaving out of account the controversial claims advanced by the author for the isolation of "vitamine," the book can be recommended as furnishing a good general account of the diseases mentioned. In this regard it should prove useful to the student interested in these problems.

H. MacLean.

VEDDER (E. B.). [A.M., M.D. Captain Medical Corps, U.S. Army.] **Beriberi.**—viii + 427 pp. With 51 text-figs., folding chart, and 5 coloured plates. 1913. London: John Bale, Sons & Danielsson, Ltd. [18*s.* net.]

This excellent book has appeared at an opportune time for, as the author states in the preface, the subject of beriberi has been in hopeless confusion for years and though a mass of literature has of late accumulated, there is no book written in English which has been published since BRADDON'S work of 1907. The author has personally studied beriberi both from its clinical and experimental side and is well qualified to form opinions on the large amount of research work that has been carried out, and he naturally puts forward his own views in the strongest and most convincing way, as seen in his definition of the disease. "It is a disease resulting from faulty metabolism *usually* only seen in those persons who eat rice as the staple diet, and is directly caused by the deficiency of certain vitamines in food." In the 416 pages there are sixteen chapters, dealing with the history, pathology, symptomatology, rice and its preparation, the etiology of the disease (six chapters including polyneuritis in fowls and beriberi in animals), infantile beriberi, ship beriberi, epidemic dropsy, theoretical and practical considerations, with a very good bibliography and an appendix.

In the description of the disease he states that there is no definite distinction between wet and dry beriberi, though his own view is that there are differences, but these are not sufficiently known to make it advisable to establish a distinction; also in the discussion of the etiology, the probability of there being several forms of vitamines, both preventive and curative, is shown to be supported by evidence. He discusses very fully the infection and intoxication theories and shows how neither can explain the presence and distribution of the disease, and that facts gathered from all sources substantiate the deficiency theory, so strongly advocated by EIJKMAN, FRASER, STANTON, GRIJNS, HIGHET, and many others. He considers that polyneuritis gallinarum and human beriberi are etiologically the same disease, though the cardiac manifestations found in man are not present in fowls. The actual deficiency is not a phosphorus compound as thought by SCHAUMANN, but is probably a base derived from nucleic acid which is rapidly destroyed by treatment with fixed alkalies. The exact composition of this base is at present unknown, several formulae having been given by FUNK, EDIE, EVANS and others. Probably there are several active substances which are essential in the diet of birds, man and some other animals, acting in very minute doses. These for want of a better term are called vitamines. In the practical considerations the necessity of concerted action by an International Board is strongly supported, followed by legislative measures, and the education of the people on the importance of avoiding the use of polished rice. Without this there will be little chance of stamping out the disease in large communities, as has been done so successfully in the government establishments in the Philippines and the Malay States. The book is very well illustrated and should be carefully read by everyone who is interested in the subject.

P. W. Bassett-Smith.

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